

UNIVERSITIES AND REGIONAL DEVELOPMENT

*A Case study of University for Development
Studies (UDS) in Northern Ghana*

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ABSTRACT

University for Development Studies was established by the Government of Ghana in 1992 under the PNDC Law 279 in northern Ghana with an explicit mandate to blend its academic work with that of the community in order to provide constructive interaction between the two for the total development of northern Ghana in particular, and the country as a whole.

This study sought to investigate into how the university is responding and engaging in regional development in northern Ghana with specific focus on how it is responding to human capital development, innovation capabilities, and social and environmental development in northern Ghana. The study also sought to illuminate the key factors constraining the regional role of the university. The methodology used to pursue this objective is qualitative in nature based on semi-structured interviews and documentary analysis. In all thirteen respondents were purposefully selected from specific units within the university for the study.

The study reveals that UDS has undertaken a number of initiatives and programmes aimed at responding to its regional development mandate. The study shows that UDS allocates 40 percent of its admission place to applicants from its catchment area, creating opportunities for more females to be enrolled through its admission process, localising the teaching and learning process by adopting a curricula that integrates students into communities in the third trimester of each academic year, introducing new academic degree programmes and adapting existing ones in response to regional labour market needs, and responding to the needs of non-traditional students by introducing lifelong learning programmes.

The study also shows that there are some initiatives that have been taken to introduce innovative practices in agriculture (initiated both by the institution and individual academics) but little effort in building innovative capabilities in other industrial activities and local businesses. The University collaborates with the Savannah Agricultural Research Institute and the veterinary department of University of Glasgow to engage in research aimed at introducing improved varieties of seeds to local farmers in order to enhance agricultural productivity and improving the nutritional quality of animal feeds respectively.

The University is also responding in a variety of ways to the social, cultural and environmental development of Northern through the institution of the Third Trimester Field Practical Programme, engaging in public debate through the institution of the annual

“Harmattan School”, promoting social and environmental development through research at the Centre for Continuing Education and Interdisciplinary Research, and improving the health needs of the people through the initiation of the Community-Based Education and Service (COBES) at the Medical School.

However, the study found that in spite of the above initiatives and programmes, UDS is saddled by a number of challenges in responding to its regional development mandate. Among these are inadequate funding of regional engagement activities by the national government and regional authorities, inadequate infrastructural development in northern Ghana, lack of ability and readiness of the regional economy to absorb university knowledge and graduates, lack of specific internal incentive structures to motivate academics to engage in activities of regional nature and unwillingness on the part of some academics to engage in activities of regional nature.

DEDICATION

I dedicate this work to my mother, Paulina Adjoa Appiah, and to my father, Usman Yaw Akyere (deceased). You have made me who I am today and may God Almighty shower His blessings on you.

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Nothing would have been possible without the support and mercy of God. I am really grateful to Him for the love, protection, and the guidance He has shown to me.

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Usman Kojo Abonyi

Oslo, Norway- May 2011

TABLE OF CONTENT

ABSTRACT	IV
DEDICATION	VI
ACKNOWLEDGEMENT	VII
TABLE OF CONTENT	VIII
LIST OF TABLES & FIGURES	XI
TABLES.....	XI
FIGURES	XI
ABBREVIATIONS AND ACRONYMS	XII
1 INTRODUCTION TO THE STUDY	1
1.1 Introduction	1
1.2 Background to the study	1
1.3 Research problem and purpose.....	4
1.4 Research questions and research design	6
1.5 Significance of the study	7
1.6 Thesis outline.....	7
2 LITERATURE REVIEW AND ANALYTICAL FRAMEWORK	8
2.1 LITERATURE REVIEW.....	8
2.1.1 Higher education and regional development: the ongoing debate	9
2.1.2 Higher education and regional human capital development	12
2.1.3 Higher education and regional innovation	16
2.1.4 Higher education and social and environmental development.....	21
2.1.5 Higher education and regional development: Enabling /constraining factors ...	24
2.1.6 A model of university engagement: the Land-Grant tradition in the US	29
2.2 The analytical framework.....	31
2.2.1 Adapting the analytical framework of the OECD (2007) study.....	32
2.2.2 Some reflections and the relevance of the Land-Grant Tradition to the study ..	35
2.2.3 Study proposition	36
3 METHODOLOGY	37
3.2 Study Design.....	37
3.3 Data Collection Instruments	39
3.4 Selecting informants for interviews.....	40

3.5	Data Collection Procedure.....	41
3.6	Data Analysis.....	42
3.7	Validity and Reliability Issues.....	43
3.8	Study limitations.....	45
3.9	Ethical Issues	46
4	STUDY CONTEXT.....	47
4.2	Background information about Ghana	47
4.3	Background to Northern Ghana.....	48
4.3.1	Upper West Region	48
4.3.2	Northern Region.....	50
4.3.3	Upper East Region	51
4.4	Profile of UDS.....	52
4.5	Conclusion.....	54
5	DATA PRESENTATION AND ANALYSIS.....	55
5.1	HUMAN CAPITAL DEVELOPMENT.....	55
5.1.1	<i>Recruitment of students from Northern Ghana</i>	<i>55</i>
5.1.2	<i>Localising the learning process</i>	<i>57</i>
5.1.3	<i>Establishment of programmes in response to regional labour market needs</i>	<i>59</i>
5.1.4	<i>Promoting Lifelong Learning</i>	<i>60</i>
5.1.5	<i>Graduate retention and employability into northern Ghana</i>	<i>61</i>
5.2	Building the innovation capabilities in northern Ghana.....	62
5.2.1	<i>Introduction of innovative practices in Agriculture in Northern Ghana</i>	<i>62</i>
5.2.2	<i>Institutional mechanisms for knowledge transfer to local communities</i>	<i>63</i>
5.3	RESPONDING TO THE SOCIAL, CULTURAL, AND ENVIRONMENTAL DEVELOPMENT	64
5.3.1	<i>Third Trimester Field Practical Programme (TTFPP).....</i>	<i>65</i>
5.3.2	Engaging in public debate through the institution of the “Harmattan School” ..	68
5.3.3	<i>Improving the health needs of the people of Northern Ghana</i>	<i>70</i>
5.3.4	<i>Enhancing social, cultural, and environmental development through research</i>	<i>71</i>
5.4	CONSTRAINING FACTORS TO THE REGIONAL ROLE OF UDS	72
5.4.1	National factors	73
5.4.2	Regional factors.....	74
5.4.3	Institutional factors.....	77

5.5	Summary of findings	80
5.6	Conclusion	83
6	DISCUSSION, RECOMMENDATIONS AND CONCLUDING REMARKS	84
6.1	Introduction	84
6.2	Discussion of findings	85
6.2.1	Enhancing Human Capital Development in Northern Ghana	85
6.2.2	Responding to building innovation capabilities of northern Ghana.....	88
6.2.3	Engaging in social, cultural, and environmental development	91
6.2.4	Constraining factors to regional development role	93
6.2.5	A reflection of findings on the notion of universities in regional development/ analytical framework.....	97
6.3	Ideas for future studies	99
6.4	Recommendations	100
6.5	Concluding remark	100
	REFERENCES.....	102
	APPENDICES.....	107
	APPENDIX A: An introductory letter from University of Oslo.....	107
	APPENDIX B: Authorization letter from the University for Development Studies	108
	APPENDIX C: Interview guide	109

LIST OF TABLES & FIGURES

TABLES

Table 51: Research focus of CCEIR and its rationale.....	33
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FIGURES

Figure 2.1: A diagrammatic presentation of the OECD analytical framework.....	72
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ABBREVIATIONS AND ACRONYMS

AUE	Association of European Universities
CCEIR	Centre for Continuing Education and Interdisciplinary Research
COBES	Community-Based Education and Service
GDHS	Ghana Demographic and Health Survey
GDP	Gross Domestic Product
GLSS	Ghana Living Standard Surveys
GSS	Ghana Statistical Service
GTZ	German Agency for Technical Co-operation
NASULGC	National Association of State Universities and Land-Grant Colleges
NGOs	Non-Governmental Organizations
NMMU	Nelson Mandela Metropolitan University
OECD	Organization for Economic Co-operation and Development
PNDC	Provisional National Defence Council
RCC	Regional Coordinating Council
SADA	Savannah Agricultural Research Institute
SMEs	Small and Medium Enterprises
TTFPP	Third Trimester Field Practical Programme
UDS	University for Development Studies
UER	Upper East Region
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UWR	Upper West Region

1 INTRODUCTION TO THE STUDY

1.1 Introduction

Universities are expected to make an active contribution towards the socio-economic development of the regions in which they are located. University for Development Studies (UDS) serving as the only public university in the northern part of Ghana was established in 1992 under the PNDC Law 279, with an explicit mandate to contribute to the development of northern Ghana. Thus, there is a high expectation on the university to contribute meaningfully towards the social, economic, and environmental development of northern Ghana since the northern part of Ghana remains as the most deprived part of the country. What has not being an area of concern is how the university is responding to such a mandate and the sort of factors that constrain it in that direction. The thesis addresses this issue.

1.2 Background to the study

Over the past few decades, academic interest in the relationship between knowledge production institutions within a region and the region's socio-economic development has increased significantly. It is observed that the two core functions of higher education institutions- teaching and research- are exogenous to and independent from specific economic and social imperatives (Chatterton & Goddard 2000; Gunasekara 2005). In that respect, universities and other higher education institutions are being called upon by various regional actors and agencies to make active contribution to the region in which they are located.

As an example of an agency supporting such a mandate for universities, the Association of European Universities (AEU) emphasizes that “in order to respond better to the needs of different groups within society, universities must engage in a meaningful dialogue with stakeholders and that universities which do not commit themselves to open and mutually beneficial collaboration with other economic, social and cultural partners will find themselves academically and economically marginalized” (Davies 1998 quoted in Chatterton & Goddard 2000). What this implies is that by engaging in “meaningful dialogue with stakeholders” in the universities' environment, universities as well as the regions (and counties for that matter) stand to gain. This observation fits appropriately well at a time when “virtually everywhere mainline institutional support from government, as a share of total budget, is on the wane”

(Clark 1998:7) for higher education institutions. Therefore, in addition to teaching and research, higher education institutions are to play a key role as agents of economic, social and cultural development in their located regions (Puukka and Marmolejo 2008) since it is perceived to be beneficial both to the engaged university as well as to the larger society.

According to the Organization for Economic Co-operation and Development (OECD) (2007), the contribution of higher education institutions to developing their home regions has not previously been a concern for public policy or the higher education institutions themselves. However, according to the OECD this is changing due to the expansion of higher education particularly in the non-university sector, which in some cases has aimed to address regional disparities and the fact that there is a policy switch in most OECD countries towards indigenous development in regions emphasizing skills, entrepreneurialism and innovation. It is also argued that this change is in response to a number of “push” and “pull” forces, such as government policy, community expectations, the massification of higher education, technology and the emergence of a more socially distributed knowledge production system, so-called mode 2, where knowledge increasingly is produced in transdisciplinary and cross institutional settings (Gibbons et. al. 1994 in Gunasekara 2004a) and also by the process of globalization and regionalization in economic development (Chatterton and Goddard 2000). Thus as Chatterton and Goddard put it, “the changing role of higher education institutions in regional development must be seen in a broader context of globalization and the changing nature of regional development and governance, notably the shift in emphasis from material to non material assets (knowledge, skills, culture, institutions) and the resurgence of the region as an important arena for political and economic activity” (p.478). Harloe & Perry (2004) have also indicated that the new role of universities in relation to the sub-national economies and societies has been widely justified in terms of the development of the knowledge economy and changing notions of scale.

In the emerging knowledge based economy, knowledge has become increasingly important in determining national as well as regional competitiveness (World Bank 2002; OECD 2007; World Bank 2008). This implies that unlike the era where the wealth of a nation was largely determined by the stock of its available natural endowment, the success of any region or nation to compete globally in today’s world is largely determined by how well it is positioned to use the available knowledge to transform its natural resources. As pointed out by the World Bank (2002), knowledge accumulation and application have become major factors in

economic development and are increasingly at the core of a country's competitive advantage in the global economy and that countries without a minimum scientific and technological capacity will also lag in realizing social and human benefits such as rising life expectancy, lower infant mortality and improved health, nutrition and sanitation. In the wake of such developments, higher education institutions that serve as one of the key knowledge producing institutions in their regions are increasingly recognized as key actors and instrument in regional development. Thus, "if knowledge is the electricity of the new informational international economy (knowledge economy), then institutions of higher education are the sources on which a new development process must rely" (Castells 2001 cited in Cloete et al. 2005).

However, in spite of the key role that higher education institutions play in the development of their regions and the nation as a whole, higher education institutions in most developing countries, including Sub-Saharan Africa, have over the past few decades not received the necessary attention and support they needed to play this crucial role, which stands in sharp contrast to their counterparts in the OECD countries. Since the 1980s many national governments and international donors assigned higher education a relatively low priority. The notion was that "public investment in universities and colleges brings meager returns compared to investment in primary and secondary schools, and that higher education magnifies income inequality" (World Bank 2000). This according to them made higher education institutions in most developing countries to be underfunded and this led to the deterioration of many of the institutions, thereby making it difficult for them to perform their functions effectively.

However, a new way of viewing the higher education institutions in Africa by governments and international agencies is evolving as they are now being seen as key players if Africa is to catch- up and also compete globally in the knowledge economy. It is observed by the World Bank (2008) that a more knowledge intensive approach to development is emerging as an attractive option for many African countries – possibly the only route that could permit sustained, outward oriented development. What these developments mean is that higher education institutions in developing countries, including Sub-Saharan Africa, are increasingly recognized to be active players in national as well as regional development.

1.3 Research problem and purpose

In the early part of the 1990s, the Government of Ghana realizing the potential contribution that higher education institutions in general and universities in particular can and do play in the development of their located regions, established the University for Development Studies (UDS) in the northern part of Ghana. The university was set up with an explicit mandate to help address and find solutions to the environmental problems and socio-economic deprivation that have characterized the people of northern Ghana in particular. In other words, UDS was established by the Government of Ghana in reaction to what the foundation University Registrar referred to as “the new thinking in higher education which emphasizes the need for universities to play a more active role in addressing problems of the society, particularly in the rural areas” (Effah 1998). It is a unique higher education institution in Ghana in the sense that this university happened to be the only public university established in the history of Ghana with that explicit regional development focus right from its establishment.

Among other aims, the founders indicated through the legislative instrument, PNDC Law 279, that the university would provide higher education that would ‘blend the academic world with that of the community in order to provide constructive interaction between the two for the total development of northern Ghana in particular, and Ghana as a whole’ (Manuh et. al. 2007:166). Other provisions of that law demarcates the higher education institution’s academic fields of emphasis to include agricultural sciences, medical and health sciences, and integrated development studies; and also enjoin the university to embark on research and offer practical training in the subject it teaches (Kaburise 2003). Thus in addition to its core functions of teaching and research, UDS was given an added responsibility for regional development.

The catchment area of the university covers what is traditionally called Northern Ghana – comprising of three administrative regions- Northern Region, Upper East Region and Upper West Region. Northern Ghana covers an area of 97,702 square kilometers which represent about 41 percent of the total land area of Ghana. It is Guinea Savannah grassland, with prolonged period of dry season. It is estimated that about 80 percent of the region’s population is rural, engaged in peasant agriculture – farming and fishing.

These three regions have been noted to be the poorest, both in absolute and relative terms, in Ghana using various indices of measurement (Ewusi 1976; Asenso-Okyere et al. 1993; GDHS, 1994; GLSS 1996; GDHS 1999; cited in Kaburise 2003). They fall below national average levels of income and consumption expenditures; weak education and literacy levels; poor health and sanitary conditions; and absence of basic social amenities. Nine out of ten people in the Upper East Region, eight out of ten in the Upper West and 7 out of ten in Northern Region were classified as poor in 1999 (Manuh et al. 2007:25). Also, cross sectional surveys in several parts of Northern Ghana indicate that seasonal hunger, an indicator of poverty, exists in all communities surveyed (Dittoh and Ankomah 1997; Dittoh et al. 1998 cited in Kaburise 2003). Thus, at its establishment the university was seen as a key player and instrument for the development of this economically disadvantaged region.

Across the country, some gains have been made which have considerably improved the well-being of the people, with the proportion of Ghanaians living in poverty falling from 52 per cent in 1991- 92 to 29 per cent in 2005- 06, according to estimates by the Ghana Statistical Service (Harsch 2008). However, it is documented that the incidence of poverty in the Northern Region declined slightly over the same period from 63 percent to 52 percent. In the Upper West Region, it remained static at 88 percent, while in the Upper East Region it actually increased from 67 per cent to 70 percent. According to the UNDP's Ghana Human Development report 2007, these three regions "harbor the poorest of the poor" (ibid).

This is an indication that not much has been achieved as far as the socio-economic development of Northern Ghana is concerned and there is still a perceived gap between the south and the north of Ghana. However, the policy expectation on this university to have a close relationship with its surrounding regions has not attracted the needed attention it demands in the literature. Few empirical studies (if any) have sought to investigate into how the university is responding to such a regional mandate in northern Ghana and hence the sort of factors that constrain it in that direction. It is against this background that this study seeks to investigate into how the UDS as a case of a university with a particular regional development mandate has envisioned and carried out this role within a highly disadvantaged region.

With this in mind, the main aim underlying the study is to investigate into how the University for Development Studies, established with regional development mission, is responding and engaging in regional development in northern Ghana with particular focus on how the

university is responding to the following three key dimensions of regional development in northern Ghana:

- Human capital development
- Building the innovation capabilities in the region
- Social, cultural, and environmental development.

Second, the thesis will also address the concerns of possible hindrances to the university's regional development role in an economically disadvantaged region, discussing factors at national, regional, and institutional level.

1.4 Research questions and research design

In pursuit of the above objective, the following research questions have been posed to serve as a guide to the collection and analysis of the data:

Main Question: How is the UDS responding and engaging in regional development in northern Ghana and what factors constrain its effort?

Sub – Questions:

1. In what ways is the university responding to the development of human capital needs of northern Ghana?
2. How is the university engaging in building the innovation capabilities in northern Ghana?
3. How is UDS responding to the social, cultural, and environmental development of northern Ghana?
4. What are the possible factors that constrain the university in responding to its regional development mandate?

For the purpose of investigating into how UDS is responding and engaging in regional development, this study employs qualitative research strategy and a case study research design. Literature on the regional role of higher education institutions was reviewed and also

the study employed the analytical framework used in an OECD (2007) study which conceptualizes regional engagement of higher education institutions into three key dimensions – knowledge creation, human capital formation and knowledge transfer, and cultural and community development. In this study, data collection was done through interviews and documents. Respondents were selected from specific units of the university through purposive sampling technique. Though the study sheds light on a number of ways that UDS is responding and engaging in regional development, it also reports some study limitations including the inability of the researcher to seek views of stakeholders outside the university.

1.5 Significance of the study

The response of higher education institutions in Sub-Saharan Africa in general and Ghana in particular to regional development has not received much attention in the literature compared to their counterparts in the OECD countries and other developed countries. Though there have been some studies in Africa on the contribution of universities to economic development (e.g. Bloom et al 2005; Nga 2004), these studies tend to measure the economic impact across national levels. Few empirical studies (if any) tend to focus specifically on institutional responses and how individual universities are engaging in regional development and the possible hindrances confronting them in the engagement in the African context. We hope this study will go a long way to contribute to our understanding on how a university established in a deprived area with regional development mandate is likely to carry out its development role and the factors that constrain it.

1.6 Thesis outline

The study has been organized under six chapters. The first chapter focuses on the general introduction of the study and presents the background to the study, Problem statement and purpose, research questions and research design, the significance of the study, and the thesis outline. Chapter two reviews the related literature on the regional role of higher education institutions and also presents the analytical framework of the study. Chapter three spells out the methodology while Chapter four gives the basic information on the study context which comprises information on Ghana, the profile of the three northern regions and the profile of UDS. Chapter five focuses on the presentation and the analysis of the empirical data while the last chapter of the study, chapter six, presents the discussion and recommendations.

2 LITERATURE REVIEW AND ANALYTICAL FRAMEWORK

This chapter reviews related literature for the study and also presents the analytical framework employed in the study. In that vein the chapter is divided into two sections. While section 2.1 presents the literature review, the analytical framework is described under section 2.2.

2.1 LITERATURE REVIEW

In line with our overall purpose and the sort of research questions to be investigated in the study, this section reviews the related literature on the role of higher education institutions in regional development, with particular focus on empirical studies on how higher education institutions have been responding and engaging in regional development. The review is structured under the following headings:

- Higher education and regional development: the ongoing debate
- Higher education and regional human capital development
- Higher education and regional innovation
- Contribution of higher education to social and environmental development
- Higher education and regional development: Constraining factors
- The Land-Grant tradition: a model of university engagement

Two major bodies of literature have conceptualized the regional role of higher education institutions (Gunasekara 2004a; 2005); the triple helix model of university, industry and government relations (Etzkowitz 2000), and the literature on university engagement (Chatterton and Goddard 2000). Gunasekara (2004a) categorizes these two into generative and developmental roles respectively. In terms of the generative role, universities are key drivers of economic development through academic entrepreneurial activities that overlap with traditional roles of industry and government in regional innovation processes. This

comprises of a range of boundary-spanning, knowledge capitalization mechanisms such as incubators, new firm formation and science parks, as well as universities research centers' and participation in the governance of firms. On the other hand, the university engagement literature, though accept that universities may undertake generative activities, proposes that universities adapt their core functions of teaching and research, as well as community service, to address actual regional needs (Chatterton and Goddard 2000; OECD 2007). Though the review captures to some extent both bodies of literature, much of it is drawn from the university engagement literature considering the research questions of the study and the analytical framework employed in the study.

2.1.1 Higher education and regional development: the ongoing debate

Traditionally, universities have been much concerned with their core functions of teaching and research. This to a large extent granted a detachment between the mission of universities and the immediate social and economic development of states and regions. Thus, as put by Chatterton and Goddard (2000) there is a general concern that teaching and research within higher education institutions are not directed enough to specific economic and social objectives. University scientific research, to a large extent, was more driven by the advancement of knowledge for its own sake (so-called "blue sky" research), rather than the immediate application to societal needs.

It is recognized that in many countries, links between universities, the state and the industry became stronger after 1945, especially in the context of the cold war and the role of science in its application. In the US, much applied scientific research was undertaken in specialized state research institutions (Gummett 1991; Piganiol 1991; cited in Harloe and Perry 2004: 213). However, by 1970 the ability of science to deliver social and economic benefits was being questioned. The focus shifted to the way in which science and social scientific knowledge could have greater relevance to the larger society. Following 1980, this conception of science gave way to a new paradigm – 'science as a strategic opportunity in which the emphasis was on growth and national welfare, the development of foresight, the university – industry links and the relationship between science and innovation (Ruivo 1994; Gibbons 2001; cited in *ibid*). However, over the past few decades there have been a rise in demand on universities to play an active role in the development of their regions.

Chatterton and Goddard (2000) argue that higher education institutions have always contributed to the social and cultural development of the places in which they are located. However, to them the emerging regional development agenda can be argued to require regional engagement to be formally recognized as a third role for higher education institutions not only sitting alongside but fully integrated with the mainstream teaching and research.

Charles (2003) observes that there are a number of developments in the contemporary environment of universities which have important implications for the way universities relate to their local environment. Charles outlines these developments to include:

- Changes in central governments definition of the mission for universities within system of mass higher education (DfTE, 2001).
- Increase in the demand for skills and knowledge, in response to the increase competition in the global economy (Lundvall and Boras 1997).
- Increasing rates of technological change and new ways of organizing the production and distribution of goods and services, with new demands on the science-base (Gibbons 1994).
- Changes in the structure of governments, and greater diversity of bodies having a stake in the administrative processes and the delivering of public services (Tomaney 2000).
- New patterns of urban and regional development arising from the mobility of capital and labour, the decline of industrial sectors and the emergence of new sectors.

According to Chatterton and Goddard (2000), the changing role of higher education institutions in regional development must be seen in the broader context of globalization and the changing nature of regional development and governance, notably the shift in emphasis from material to non-material assets (knowledge, skills, culture, institutions) and the resurgence of the region as an important arena for political and economic activity. To Etzkowitz et al. (2000), confirming the developments outlined by Charles (2003), this transformation arises from both the internal development of the university as well as the external influences on academic structures associated with the emergence of the knowledge-based innovation.

Internally, among other things, it is argued that the very nature and way of knowledge production is changing and demands that universities and other higher education institutions reach out to other parties. Gibbons et al. (1994) cited in Harding (2007) argue that there is sufficient evidence to suggest that traditional ways of thinking about scientific learning base production is being surpassed by a new mode of knowledge production. This represents the shift from Mode 1 form of knowledge production to the Mode 2. According to Gibbons et al. (1994), the Mode 1 is usually organized in the context in which problems are set and solved within self-governing and self-regulating academic communities; taking place within disciplinary boundaries; research results are communicated through institutional channels; universities are the dominant knowledge producing institutions and research groups are relatively homogeneous. Knowledge for its own sake is the dominant rationale, with less concern for the ultimate use to which science will be put or producing socially acceptable results, and peer review is seen as the appropriate mode of quality control.

Mode 2 on the other hand is carried out in the context of application, shaped by a diverse set of intellectual, economic and social interests. Problems are set and solved in a transdisciplinary fashion, bringing a number of perspectives to bear on a particular issue. It is characterized by organizational diversity – not just universities, but other knowledge producing sites, linked together through functioning networks of communication. Knowledge production then moves out of disciplinary silos in universities and into new societal contexts (Harding 2007:34). Mode 2 warrants closer connections between institutions and actors in the knowledge production system and hence requires universities to reach out and operate with industry and government to a large extent than before. Despite the fact that this conception has been criticized as being too simplistic and a-historical, it is however recognized that the nature of knowledge production is changing and that knowledge institutions have to engage in networks and bringing together different actors to a larger extent than before.

One of the external development that has given rise to the call on higher education institutions to relate more with their surrounding environment is the emerging knowledge based economy. It is observed that we now live in a knowledge-based economy, where knowledge has supplanted physical and tangible asset as the key sources of wealth creation and economic growth and serves as very critical to national as well as regional competitiveness (World Bank 2002). In the knowledge-driven economy it is indicated that what counts are knowledge, skills, innovation and creativity (Harloe and Perry 2004). According to the OECD (2007), as

countries are turning their production towards value-added segments and knowledge intensive products and services, there is greater dependency on access to new technologies, knowledge, and skills. In other words, there is a general consensus that knowledge capital is becoming increasingly important to economic production and that universities whose core missions are the production, retention, dissemination, and extension of knowledge, are regarded as very important institutions in that process.

Finally, much has been written about globalization and the so-called “death of distance” thesis which has seen the rise of information technologies and the dissolution of national boundaries in trade, investment, finance, goods, people and services leading to a disembeddedness in which space, place, distance and even time are collapsed (Ohmae 1995; Morgan 2001 cited in Harding 2007). On the other hand, a range of authors focus more upon the ways in which territory and scale are becoming more, not less important as economic synergies, clusters and tacit knowledge spillovers require proximity and a continued emphasis on face-to-face contact (Cooke et al. 1997; Savitch 2002 in *ibid*). In that respect, rather than seeing economic activities as being disembedded from territory via globalization processes existing in a space of flows, many writers stress that the sub-national level is crucial in building national economic competitiveness and in the development of knowledge economy. According to Porter (1990) cited in Harding (2007), firms draw on location-specific factors for competitive success and on resources inherent within local environment. Hence, regions are increasingly becoming important locations for the competitive activities of mobile investors and as engines of national growth (Scott 1998; Dunning 2000; in *Ibid*) and as one of the core knowledge producing institutions in their regions, higher education institutions are expected to play active role in these ongoing developments.

Thus, there is enough argument, both within and outside the higher education institutions, accounting for the rising importance of universities and other higher education institutions in regional development. The next sections look at how higher education institutions respond to such a challenge.

2.1.2 Higher education and regional human capital development

The development of human capital is recognized as a key element in the development of growth as well as the competitiveness of firms, regions, and nations. According to the OECD (2001) human capital is seen as the knowledge, skills, competencies, and attributes in

individuals that facilitate the creation of personal, social and economic well-being. To Blondål et al. (2002) human capital accumulation is an important determinant of individuals earning capacity and employment prospect, and therefore plays an important role in determining the level and distribution of income in society. According to them, benefits associated with education may accrue to the individual in the form of additional earnings, improved employment probability, stronger attachment to the labour market, better health and a range of other non-economic benefits. At a macro level, investments in education increase productivity and economic growth for regions as well as countries. Thus the benefits to be accrued from the educated individual in a region can be seen both to the individual himself as well as to the society as a whole.

Universities and other higher education institutions can play a key role in developing the skill needs of the regions within which they are located. According to the OECD (2007), the “knowledge transfer on legs” is a critical element of the regional role played by higher education institutions. However, it observes that while most countries have aimed to support their regional innovation systems by supporting high technology research, technology transfers, and business related competitiveness, human capital development, localizing the learning process, and upgrading the regional base skills have often attracted less attention. Meanwhile, the knowledge that is transmitted into students and graduates and is subsequently absorbed into the regional economy is one of the most effective means of knowledge transfer and has a greater potential of transforming regional economies.

The literature points out that, higher education institutions can respond to the development of the human capital in the region in which they are located in a number of ways (OECD 2007; Puukka and Marmolejo 2008; Pillay 2011). They can widen access to higher education, especially from remote areas, communities with low tradition of participation in higher education and among non- traditional learners who combine work and study. Besides, they can improve the balance between the labour market and supply through creating improved labour market intelligence, supporting new enterprises in their curricular and enhancing links with local employers, for example with work based learning activities. They can also attract talent to the region and help retain and develop it.

Another way through which higher education institutions can help improve upon the skill base of their regions is to map out strategies to enhance graduate retention and employability in the region. According to Chatterton and Goddard (2000) the levels of graduate retention in

a region reflect an interplay of different several factors such as the ability of higher education institutions to provide courses and skills training that reflect the needs of the regional economy; the robustness, diversity and the size of the regional economy as well as the pull factor of 'core' regions. On their part, higher education institutions can pursue more regionally focused programmes which can facilitate the retention of graduates into these regions.

There are several examples of regional initiatives that have been carried out by higher education institutions. For example, Boucher et al. (2003) reveal in their study that, by increasing the regional relevancy of its programmes, the University of Twente introduced the Entrepreneurial Education Programme in 1994 which is aimed at providing students with better opportunities to find employment in the private sector either as an employee or entrepreneurs. In another case, staffs and students at the University of Limerick are also encouraged to participate in knowledge exchange with locally based business through the Co-operative Education Programme, which contribute to the vocationally aspect of education by introducing periods of off-campus work experiences into the academic programme (ibid). All these programmes are in the process of strengthening the links between these universities and the local labour market so as to create a greater opportunities for students to stay in the regions upon completion. However, they indicated that there is still a strong migratory pull from these peripheral regions to the core regions in these countries. What this situation seems to reveal is that in spite of the effort of these universities, other push factors in these peripheral regions cannot be overcome. It is observed that many peripheral regions are unable to retain a substantial number of the graduates for the regional labour market.

The impact of higher education institutions on regional labour market is significantly affected by the extent to which the knowledge developed can be applied within the region. This to large extent places a greater responsibility on higher education institutions to enhance the skill capacity of the regions in which they are located. It is observed by the OECD (2007:153) that labour market mismatch can often be attributed to: lack of labour intelligence and knowledge gaps between higher education institutions/graduates and regional employers; inadequate cooperation between higher education institutions and employers, and inadequate support for new enterprises. Thus, it is imperative that institutions of higher learning create stronger links with employers and the labour market in their regions.

The literature also points out that there are learning and teaching approaches that have the capacity to facilitate regional engagement in the core activities of the higher education institutions. Problem based learning appears to be a good way of linking students with the local economy and to enhance graduate retention (Puukka & Marmolejo 2008). The OECD (2007) study reveals that Aalborg University, Denmark, is a good example in this direction as its programmes are organized around interdisciplinary project work in groups. But there are probably many other examples as well. It was indicated that in Aalborg up to 50% of the study work is problem-oriented project work: students work in teams to solve problem areas that have often been defined in corporation with firms, organizations and public institutions. This according to Rushforth et al. (2006) cited in Puukka and Marmolejo (2008) would go a long way to provide students with transferable skills and authentic work experience; firms benefit from a clear picture of what the university stands for and how the students might fit in as prospective employees; and the university gains feedback and access to instructive cases and ideas for research and teaching.

Gunasekara (2004a) categorising the nature of the role of higher education institution in human capital formation into either developmental or generative roles, reveals that University of Western Sidney (UWS) performs a developmental role in human capital formation. This, as pointed out, is shown in the university's distinctive contribution to student recruitment and graduates retention and in the adaptation of a number of education programmes to align with regional needs. It is observed that regional issues shaped the delivery of health education programme through work placement in hospitals, health centres and age care facilities, as well as co-teaching undertaken by university staff and senior hospital staff. Similarly, education programmes were grounded in the development needs of the region, through linkages with public education sector. The study however found that there was little attention being paid to the development of education programmes that addressed specific regional industry needs, notably in the SME's and also little evidence of a systematic assessment of regional skill gaps and the development of programmes to address the gaps.

In the same study, Charles Sturt University in helping to build the skill base of Riverina region, recruits 23 per cent of its students from non-metropolitan regions. Beyond that the university's role in human capital formation occurs in a number of ways: through the development of courses that address skills and services gaps in regional centres, for example, education programmes in Viticulture and wine making; through industry education

programmes that are tailored to meet regional knowledge needs; and through the infusion of a regional perspectives in mainstream education programmes.

Also, Goddard et al. (2003) found out that Turku University in Finland plays a significant role in developing human capital in South West Finland by recruiting students from the region and providing local qualified labour to local employers. For example, the study revealed that in 2002 Turku University recruited 51 per cent of all the new bachelors and masters level students from South West Finland.

The OECD (2007) emphasizes that higher education institutions can also localise the learning process by drawing upon the specific characteristics of a region to aid learning and teaching. Locally based teaching is an effective way of exposing the region to the work of the institution and the skill and talent of their students. Furthermore, higher education institutions can also enhance the regional skill base through lifelong learning and distance education. The OECD indicates that due to the changing skill requirements in working life, lifelong learning and skill upgrading are becoming increasingly important. It claims that in general higher education institutions are often more strongly oriented to meet the needs of traditional students than non-traditional learners. However, the changing nature of labour market competencies requires retooling and re-skilling of workers to enable regions to be competitive. This then calls for the restructuring of programmes in higher education institutions to cater for the changing labour needs. The provision of programmes should be flexible taken advantage not only of work based learning but also electronic learning and distant learning programmes in order to take account of non-traditional learners, those who combine work and study and the needs of employers. This aspect of building the skill base has a greater potential of having a significant impact on regions since as being put succinctly by the OECD (2007) “adult learners, who have established links in a specific locality, are less mobile than younger students. Upgrading their skills will thus have a more direct effect on the region’s economic performance”.

2.1.3 Higher education and regional innovation

As knowledge becomes an increasingly important part of regional innovation and development process, the role of universities has come to the fore of regional innovation and economic development policy (Cooke 2004; Fritsch 2002; cited in Huggins and Johnston (2009). Innovation is seen as the application of inventions of new production process and

methods to productive activities, as well as introduction of new products/processes and services. It may also include the introduction of new social and institutional methods of organization and management, associated with modern methods of conducting economic and social activities (Mora et al. 2006). In other words, it is seen as the ability to conceive, develop, and/or produce new products and services, to deploy new production processes, and improve on those that already exist (Lester 2005).

The knowledge base of an economy underpins the capacity to create and develop new ideas, thoughts, processes, and products and translate these into economic development – that is, increasing the value of a regional economy and the associated generation of wealth (Huggins and Izushi 2007; cited in Huggins and Johnston 2009). In other words, the creation and application of new knowledge serves as a critical factor that drives productivity and economic growth in knowledge-based economies. To Lester (2005) links between innovation, productivity and prosperity are increasingly recognised around the world. Thus, it is not surprising that universities, whose core missions are the production, retention, dissemination and extension of knowledge, are seen important to economic development (Arbo and Benneworth 2007).

Chatterton and Goddard (2000) assert that research within higher education institutions, especially the university sector, has traditionally focused on the production of basic knowledge for the international academic community and has neglected the application of established knowledge for the local/regional community. However, there are a number of trends that are encouraging universities for commercializing their research activities and link their research and expertise more closely to their surrounding environment.

Universities contribute to local innovation processes in a variety of ways. According to Lester (2005) the university's role in local innovation processes depends on what kind of industrial transformation is occurring in the regional economy. He categorizes the industrial transformation processes into four typologies as presented below and according to him all these transitions have their respective roles for higher education institutions.

- Type I: Indigenous creation of new industry. This relates to the development of a new industry that has no technological antecedent in the regional economy. It is emphasized that this approach is popular both among research intensive universities

and regional development agencies and that it requires new venture capital and considerable investment in the commercialization of research results and ideas.

- Type II: Transplantation from elsewhere. This transformation is linked to the development of new industry that is based on inward investment and hence imported to the region from elsewhere. An example is shown in the OECD (2007) study that because of the knowledge base in ICT created by the higher education sector, companies such as Google, Yahoo, and General Electrics have located part of their research and development (R&D) activities in Trondelag in Norway.
- Type III: The diversification of existing industries. This refers to the process in which the core technologies of the declining industries are redeployed to provide a basis for the emergence of new industry. With this approach, Puukka and Marmolejo (2008) point out that in regions that lack knowledge based industries one of the main obstacles in implementing the pathway is the limited basis on which to draw for diversification. An example is given of the Ceramics Research Institute of the Local University Juame, in the province of Castellon in the Spanish autonomous region of Valencia, which has helped to transform the traditional tile industry into a global leader (Ibid).
- Type IV: Upgrading of existing industries. This type of transition entails the introduction of new production technologies or production and service enhancement. An example is the revitalization of the industrial machinery sector in Tampere, Finland, where the integration of electronics, control, and communication technologies into traditional mechanical engineering product systems helped a group of local manufacturers achieve global competitiveness in the highly specialized machinery markets serving the forestry, paper, and transportation industries.

For Type I transitions involving the creation of a new science-based industry, important activities of universities include providing various kinds of support for new business formation, pro-active technology licensing programmes and policies, and efforts to broker ties between academic researchers and local entrepreneurs. Key individuals at the university may also play important roles in establishing an identity for the new industry, convening conferences and workshops, initiating standard-setting activities, and generally acting as

industry ‘evangelists’ by drawing attention to the existence of local concentrations of related activities and by painting a picture of future impact and growth potential.

For Type II transitions involving the relocation of industries into the region, important university activities include responding to the local manpower needs of the relocating firms, especially by developing new, customized curricula and continuing education programs. Another important role is to provide technical assistance to local suppliers and subcontractors.

For Type III transitions involving diversification out of existing local industries into technologically related new ones, a key role for the university is to cultivate technological links between disconnected actors, for example by establishing on-campus forums for discussion of new applications of local industrial technologies. Another important role is to help build the identity of the new industry locally.

Finally, for Type IV transitions involving the upgrading of the technological base of existing industries, local universities contribute to technical problem-solving through contract research and faculty consulting, develop industry-relevant degree and continuing education programs, create student internship and faculty leave opportunities in the local industry, convene foresight exercises and user-supplier forums on campus to discuss the future development of the industry, and participate in global best-practice scanning activity with local industrial practitioners.

Lester’s (2005) argument as presented above is that different industrial transformation or pathways require different roles to be played by universities. Thus, he claims that the “one-size-fits-all” approach to economic development pursued by so many universities, with a focus on patenting, licensing, and new business formation, should be replaced with a more comprehensive, more differentiated view of the university’s role in regional innovation. He advises that, universities need a stronger awareness of the pathways along which local industries are developing and the innovation processes that are associated with those pathways. They should then align their own contribution with what is actually happening in the “local” economy. Also, Drabentstott (2008) opines that regions need access to specific innovation necessary to exploit their competitive advantage and hence the “one size fit all” innovation delivery simply does not allow rural regions to seize their full potential. In that vein, Lester puts it succinctly that:

“Not all local economies are like Silicon Valley, not all industries are like biotechnology or software; and not all universities are like Stanford. University leaders responsible for economic development mission need to understand the particular circumstances and needs of local industries, as well as strengths and weaknesses of their own institutions. These leaders need to understand the pathways which local industries are developing and the innovation processes that are associated with those pathways. And they should seek to align the university’s contribution to local economic development with what is actually happening in the local economy” (Lester 2005, p.28).

What these observations show is that the role of universities in regional development needs to be addressed in a particular context taking into consideration the characteristics of the region where the university is located and the internal dynamics of the university. In other words, no single formula exists for how universities can stimulate innovation activity and industrial development in a particular region and hence the role of universities in regional innovation has to be adapted to the distinctive characteristics of the innovation processes of the regional economy (Isaksen and Kalsen 2010).

Also, the literature points out a number of channels or mechanisms through which university research activities is transferred from higher education institutions to the industrial sector and the wider community. Chatterton and Goddard (2000) assert that higher education institutions have established a number of mechanisms to manage their research interface with the outside world. Explicit mechanisms through which research results are transferred between higher education institutions and regional stakeholders include singly entry points such as regional development offices, research centres, spin off companies, incubator units, advice and training services, sciences parks and mechanisms to exploit intellectual property rights. Cohen et al. (1998) examined the importance of particular channels of knowledge transfer from the university to industry as perceived by the industry. His results revealed that some channels such as publications, conferences, informal conversation and consulting, are considered more important overall for knowledge transfer and also that different industries value different channels differently (Cohen et al. 1998 cited in Agrawal 2001).

Charles et al. (2005:35) revealed in their study that higher education institutions in North East England have established a number of research and business support centres which have focused at least to some degree on collaboration with or stimulating the development of new local businesses. According to them the mechanisms that have been developed to

commercialize research and to promote technology transfer between higher education institutions and regional stakeholders includes research centres, collaboration, and consultancy; intellectual property transactions; promotion of spin-offs, incubators, and science parks. However, Chatterton and Goddard (2000) claims that the most effective technology and knowledge transfer mechanism between higher education institutions and the external environment is through the institutional teaching function and mobility of university graduates. As staff and students integrate themselves into their environment through outreach activities, placements and also through the design of the teaching curriculum, it stands a greater potential of building the innovative capabilities of regions. It also fosters an intimate relationship between the teaching and research functions of higher education institutions.

In a study on ‘higher education institutions as drivers of regional development in the Nordic countries’, Hedin et al. (2009) outline some good practices in respect of research approaches that help stimulate regional development which include the following:

- Inclusion of regional aspect relating to the higher education institution’s areas of competence and strength in the research strategies of the university.
- Emphasis on applied and need/use driven research connected to companies in the region.
- Establishment of facilities, such as laboratories connected to companies in the region for joint research project.

Many higher education institutions have organized their contribution to building the innovative capacity of their region through a multi– facet approach that combines a number of the above mechanisms, which in turn depicts the evolving needs of the region. It is suggested that the research relationship between higher education institutions and their regions must be a dynamic one – utilising a multiplicity of tools (Chatterton and Goddard 2000).

2.1.4 Higher education and social and environmental development

Regional development was previously seen in economic terms and with focus on technology based development drawing on a narrow concept of innovation (Puukka and Marmolejo 2008). However, the OECD (2007) advocates for a broader regional development concept including community development, welfare, social inclusion and cohesion, sustainability and

cultural vitality, hence recognizing that social, cultural and environmental developments have demonstrable economic and intrinsic benefit. To them, these underpin and stabilize economic growth and bring forth benefits in terms of community health and welfare, social cohesion, community life and sustainable development.

Chatterton and Goddard (2000) indicates that a number of trends are converging that are increasing the service function of higher education institutions. Among these is the growing awareness of the global nature of many problems such as environmental degradation, poverty and economic development which has created a number of interconnected local responses and that higher education institutions are well placed to interpret these global issues on a local scale. Thus, higher education institutions can as well play a major role in the social and environmental development of their regions.

Higher education institutions have a strong emphasis placed on health services and welfare. These represent a considerable part of higher education institutions' activities in the region, which may include the full operation of hospitals and medical networks complementing or replacing health services provided by the government and private vendors, the offering of low-cost medical and dental services, and the establishment of student brigades etc. (Puukka and Marmolejo 2008).

The OECD (2007) study provides a number of examples of higher education institutions that in different ways are responding to the challenge of demographic change in their respective regions. An example is given of the Jyväskylä University of Applied Sciences, Finland, which is working with a wide range of stakeholders to bring the long-term unemployed back into working life. Also, in Brazil the University of Londrina is playing a similar role by improving the health needs of its region. According to Mora et al. (2006) the University's hospital is the large hospital in Northern Parana, Brazil, and has the laboratory for the production of medicines for Paraná. Besides, the university has created a legal unit, where students and staffs provide free legal advice to under-privileged inhabitants of the region.

It is also shown that University of Maringa also in Brazil has an extension and culture service which appears also very active with a variety of initiatives in areas ranging from the promotion of science and technology among school children to languages and a museum that is installed in the first house built in what is now called Maringa.

According to the OECD (2007), in the North East of England, which lags behind other English regions on health indicators, the region's public Health Observatory is housed at Durham University and works with the regional Development Agency to turn regional data into information which is useful for carrying out successful health policies. The work of the Wolfson Research Institute on Queen's College Stockton campus of the University of Durham focuses on research on medicine, health and wellbeing of the people and places particular emphasis on analysing these issues in the North East of England.

Higher education institutions can also contribute to sustainable environmental development in their regions by:

- Being a source of regional expertise through research and demonstration.
- Using their infrastructure such as science parks, incubators, laboratories and IT facilities.
- Being facilitators in bringing together diverse regional actors and elements of capacity to the sustainable process.
- Generating human capital in the region through their teaching and learning programmes in the areas of sustainable development.
- Providing demonstrations of good practice through their own on-campus management and development activities such as through strategic planning, building design, transportation initiatives, waste minimization, water and energy efficiency practice, responsible purchasing programmes and other green campus and good citizen initiatives
- Offering recognition and reward incentives for staff to be involved in sustainable development leadership groups in the regional community and by extolling the environmental virtues of the region through the higher education institution's own marketing programmes.
- Developing their teaching programmes to raise awareness and skills in the student body to become involved in volunteering and community activity in the area of sustainable practices (Garlick et al. 2007; OECD 2007).

The OECD study reveals that many higher education institutions have introduced or are in the process of introducing sustainability development policies, statement and visions. Some have developed estate management systems and supplier policies which are geared towards minimizing energy use and are also working to reduce the travel foot print of their students and staffs. There is also a wide range of R&D activities and consultancy services available to facilitate and embed environmental management systems into local businesses. For example, in Nuevo Leon, Mexico, the Monterrey campus of the Monterrey Institute of Technology (ITESM) has a centre for Environmental Quality which has since 1961 provided a wide range of teaching, research, consulting, laboratory services, extension courses and continuing education in environmental quality.

In their study on the contribution of higher education institutions to regional development in Atlantic Canada, Garlick et al. (2007) also found that initiatives such as recycling, tree planting and composting and programme to reduce green house gas emissions were some of the initiatives undertaken by higher education institutions to enhance sustainable environmental development. Besides, research centres with an environmental responsibility and their relations with governments and communities were also mentioned. For example, the Nova Scotia Community College was being recognised for their sustainable building design by receiving a Leadership in Energy and Environmental Design Award for the new Dartmouth Waterfront campus currently being erected which will embody “green” design practices.

2.1.5 Higher education and regional development: Enabling /constraining factors

While a high demand is placed on universities to play an active role in the development of their regions, there is a wide variation in the actual performances of universities in this direction. The literature points out several explanatory factors that tend to hinder regional engagement activities of higher education institutions. According to Arbo and Benneworth (2006), the extent to which higher education institutions are able to perform their regional role depends on a number of circumstances. These to them include the characteristics of the institutions, the regions in which they are located and the national policy frameworks. It is observed that the interactions of these factors can foster or hinder the contribution of universities to their regions’ development (Boucher et al. 2003).

Feldman (1994) asserts that although the proximity to a major university research appears to be a necessary condition for local-technological economic development, it alone is not a sufficient condition and provides no guarantee that economic development will follow. She adds that universities are only one element of the technological infrastructure of innovation and that if other factors are lacking, innovation is less likely to be complete and the area will not capture the benefits of proximity to the research university. Thus, there is a general consensus that a successful implementation of the regional role of higher education institutions is not only determined by the higher education institution but also other complementary factors, both within the region and the national level.

In the first place, regional engagement activities of higher education institutions is said to be influenced by the national funding strategies. According to the OECD (2007) attitudes of higher education institutions towards regional engagement are sensitive to the way they are funded. According to them, in centralized systems, core funding of public higher education institutions is generally based on certain criteria that do not factor in regional engagement and that in the absence of incentives, higher education institutions, particularly research intensive universities are more inclined to place high priority on their national and international role. As such for higher education institutions to be fully engaged in the development of their regions, national governments ought to incorporate regional development activities of universities into the funding schemes. However, Gunasekara (2006) claims that although governments were encouraging universities to support the development of their regions there is little incentive to this. He indicated that within the Australian context, there are limited regional sources of funding to support engagement activities by academics and that national scheme of funding are predicated on excellence and specific national priorities, thereby creating little incentive to participate in regional work.

It is also suggested that the successful accomplishment of regional engagement of universities depend greatly on the extent to which the funding of higher education is regionalized and discretionary power transferred to the regional government or higher education institutions (OECD 2007; Boucher et al. 2003). In countries where the regional governments are responsible for higher education, it is asserted that there may be greater commitment on the part of universities to participate in activities of regional nature. The rationale behind this is that universities then become, to a greater extent, dependent on regional authorities and is likely to enhance their links with their regional economies. According to the OECD (2008)

cited in OECD (2007) decentralization policies can promote the collaboration between higher education institutions and regions and that in some countries, devolution of powers in higher education has been carried out so that regional governments can actively contribute to the establishment of higher education institutions and better respond to the needs of the local community. In another development, Kitagawa (2005) asserts that the extent to which universities are linked to local/regional structures is partly a product of the degree of decentralization undertaken by national governments and that regionalism is influenced by the levels of regional devolution, national science policies, business structures and the economic conditions of the regions themselves. In the OECD (2007) study, an example is given of the federal government of Germany with a long history of regional funding for universities shared evenly between the lander and the federal government. Also Gibb and Hannon (2006) observe that in the US the public universities get their base funding from the state, rather than federal government and this makes them more sensitive and responsive to local needs.

However, it is pointed out that even if the funding responsibility is transferred to the regional government, it is no guarantee for the regional orientation of the university. It partly depends on the extent to which discretionary power is transferred to the region or to the universities (Boucher et al. 2003) or to the extent to which the regional activities of the universities are incentivised and outcomes monitored (OECD 2007).

At the regional level, one factor that has been pointed out in the literature is the ability of the regional labour market or economy to absorb the graduates into the region upon completion. If the labour market is not vibrant enough to retain graduates, there is likely to be a strong migratory pull of graduates into other regions. Feldman (1994) indicates that the ability of a region to retain the graduates from the university rests on the demand for their services, especially the employment and advancement opportunities in the area. To her, local area opportunity will be a function of the types and occupational structure of industries located in the area. However, it has also been pointed out that the ability of the regional economy to absorb graduates will also depend to a greater extent on the degree of alignment between the university and the regional economy in terms of the programme offered by the university. In short, the capacity of the regional economy to retain the graduates from the university will go a long way to contribute to the successful accomplishment of the regional role of the university.

Another factor identified in the literature is the nature of the demand for university knowledge and expertise in the regions. In his study, Gunasekara (2004) asserts that while the university to a certain degree has been able to foster innovation focused, knowledge linkages with public and non-profit agencies, it has been less successful establishing linkages with private firms, especially SME's. It was discovered that there was unwillingness on the part of some SME's to engage with the university, and this to some extent could be explained by the lack of awareness on the part of the SME's of how universities could assist them and also a gap in understanding the innovation process.

Also, Boucher et al. (2003) observe that in all of their case studies, the identity of the region also influences the university's commitment to the region. According to them it appears that informal personal engagement in central regions is more important than in peripheral regions. For instance, they revealed that in the Netherlands, the number of informal and ad hoc relationships with regional, national, and international actors located in the Amsterdam area is much larger than in the Twente region where engagement is more of formal character and related to formal policy initiatives (Vander Der Meer and Groeneveldt, 2000a, 2000b, in Boucher et al. 2003). Thus it is asserted that, in peripheral regions the connection between academic work, which is still highly specialized and globally oriented, and regional actors whose work is mainly centred on the regional level of the region is less evident. However, there is the possibility that these observations may not remain the same everywhere since national contexts do differ.

Another issue related to regional identity refers to the size of the region, specifically the number of regional stakeholders who articulate regional needs (ibid). It is seen that in smaller, less central regions, universities often represent a unique repository of knowledge, largely because of the lack of other institutions rendering similar services such as governmental research laboratories, social science research centres, and business with research and development departments. In that respect universities in this region are better positioned to shape the institutional arrangement and regional agenda. For example, it is shown that in Spain, the influence of universities on the regional policy agenda is less clear in Madrid than in Andalucía, and this can be attributed to the increasing number of actors, within the regional system of research and higher education located in Madrid (Campayo et al. 2000; Garcia & Macias, 2000 quoted in Boucher et al. 2003).

At the institutional level, the literature points out that internal incentive structures and criteria for promotion tend to limit engagement activities of higher education institutions. This is so because several studies have found that internal incentive structures and criteria for promotions do not place greater weight on regional engagement activities. For example, in his study in Australia, Gunasekara (2004b) indicates that interviews with managers and academic staff revealed that a key obstacle to embedding a focus on regional and community engagement was the university's promotion policy, which was not perceived as placing a high valence on regional engagement. Instead, the key criteria for promotion centred on teaching and the production of refereed research publications, with community service seen as a desirable requirement, but not critical in decision making. As he states “ although, in Australia, there have been some changes towards a stronger emphasis on regionally oriented research, the perception, at least, among academics staff interviewed was that, to have a reasonable chance of success in securing competitive grants, proposals ought to focus on problems of national and international significance, undertaken by researchers with similar credentials”(pp. 210). In other words, there is a perceived lack of alignment between the rhetoric of regional engagement and other institutional policies such as internal promotion structures.

Also, in a study of Nelson Mandela Metropolitan University (NMMU) in South Africa, Pinheiro (2010) found out that NMMU's internal reward structures follow traditional public funding models based on student and research outputs. However, he indicates that the new central administration is in the process of devising a new incentive system/policy where engagement is expected to be included for the first time but as he puts it “given the financial stringency in which both the government and the University find themselves, it is not likely that substantial amounts of resources would be allocated to incentivize academics to further engage with, and directly contribute towards economic development at the local /regional and/or national level(s)” (Pinheiro 2010:6). In that respect there is the high possibility that the engagement activities of the university is not given a high priority. In that vein, Gunasekara (2006:157) advocates that, “if regional engagement is to become embedded in institutional cultures, it is important that the reward systems recognize the importance of this direction”. This to a great extent will motivate academics to involve themselves in activities of regional nature.

One final factor that needs to be pointed out is the attitudes of academic staffs to activities of regional nature. Engagement in regional activities is not fully accepted by all as a legitimate role of higher education institutions. According to Gunasekara (2006:159) for some academics policies on regional engagement represent a curious development that creates a dissonance with their constructed role identities and that these identities, “founded upon norms of independent enquiry and membership of worldwide academic commons”, potentially are challenged by the prospect of regional work. Also, case studies from the regions in the OECD study suggest that there has been, and continuous to be, resistance in the academic community against regional engagement because it is assumed that it may limit national and international engagement (Puukka and Marmolejo 2008). Thus, within the higher education institutions themselves, there are some academics and other internal actors who oppose to regional engagement activities.

2.1.6 A model of university engagement: the Land-Grant tradition in the US

Historically, the regional engagement of higher education institutions begun in the US with the passage of the Morrill Act of 1862 establishing the Land Grant colleges of agriculture (McDowell 2003). Through the passage of the act, each state received 30,000 acres of federal land for each congressional representative from that state to be sold to provide an endowment for at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts.

These institutions were established with particular purpose in view. They were established with initial intention of contributing to the development of agriculture in their respective states. According to McDowell (2003), the notion of engagement or public service is a characteristic that made public higher education in America unique in the world and that both by virtue of the character of their scholarship and whom they would serve, these Land-Grant universities were established as people’s universities.

Among other things, the land grant institutions created access to a wider group of people whose previous experience was primarily of farms, or in bakeries and factories (McDowell 2003). According to the National Association of State Universities and Land-Grant Colleges

(NASULGC) (2008), while a number of institutions had begun to expand upon the classical curriculum, higher education was still widely not available to many agricultural and industrial workers. Thus, the Morrill Act was intended to provide a broad segment of the population with practical education that had direct relevance to their daily lives and that the Second Morrill Act (1890) sought to extend access to higher education by making available additional endowments for all land grants institutions.

In addition to creating access to a wider group for classroom instruction, McDowell (2003:34) observes that around 1900, by which time the agricultural scientists had demonstrated their ability to solve some of agriculture's practical problems, farmers clamoured for access to the insights of the scientists. According to him, the claims on scientists' time became so great that the outreach function of the university was formalized as the Cooperative Extension Service by the Smith-Lever Act of 1914. This is underscored by Graubard (1997) cited in McDowell (2003:33) as he posits that "the uniqueness of the American system needs to be emphasized, not only because of the Morrill Act and the innovations introduced by the land grant principle, with its emphasis on research in agriculture and many other fields as well but also because of the concept of service which took on a wholly new meaning in state universities that pledged to assist the citizens in ways that had never previously been considered". Thus, the act institutionalizing the link between the universities and the agricultural sector through the extension function was a unique feature of the land grant system. According to Miller (2001), the Land – Grant universities that served to create and transfer science-based technology into use by agricultural producers is arguably ranked first of all compelling scientific achievements contributing to human development and welfare from the United States in the twentieth century (McDowell 2003).

To Huffman and Evenson (1993) the success of the land-grant tradition was made clear by the period from 1920 to the end of the World War II, marking the "Transition to Science" era in American agriculture. He indicates that it was during this time that hybrid corn, among other science-based advances, was developed.

The land Grant principle: the power of engagement

The land grant colleges functioned on two principles of engagement: the quality and relevance of scholarship being practiced.

1) Engagement and the quality of science practiced

According to McDowell (2003:38) the engagement of scientists of Land-Grant colleges in solving real, practical problems through their involvement in public service activities contributed to the advancement of discovery scholarship and even the solving of practical problems. To him, research and extension scholars within the Land-Grant institutions were compelled to provide workable answers to farmers' practical problems through objective scientific enquiry. Thus, one thing that became dominance in their activities was to test the workability of their research and hence how it was to solve practical problems of real people. This sort of assessment even reflected in the appointment of researchers into these institutions. Therefore the land grant colleges engaged in quality research aimed at solving practical problems of the society.

2) Engagement and the relevance of science practiced

Another principle of engagement that manifested itself in the Land-Grant tradition was the principle of relevance. The quality of science practiced is different from the relevance of the science practiced (McDowell 2003). He asserts that "relevance has more to do with the scientific agenda and the usefulness of the products of that scholarship in the society".

What this means is that for higher education institutions to play their engagement role effectively, their research activities need to be useful and have a greater focus on the societal problems confronted by the very people within which they serve. It is in that context that the research output will be deemed relevant and this principle remained paramount in the land-grant tradition.

2.2 The analytical framework

Since the main objective of this study is to investigate into how UDS is responding and engaging in regional development in northern Ghana, it is appropriate to set out an analytical framework that serves as the lens through which the data collection and its analysis will be inspired. The analytical framework of the study is situated in a framework employed by the OECD (2007) and also lessons drawn from the American Land-Grant tradition as a model of higher education engagement.

2.2.1 Adapting the analytical framework of the OECD (2007) study

This study adapts the analytical framework employed in the OECD (2007) study: Higher education and regions – Globally competitive and locally engaged. In the study, the OECD (2007:22) conceptualizes the regional engagement of higher education into three dimensions, namely:

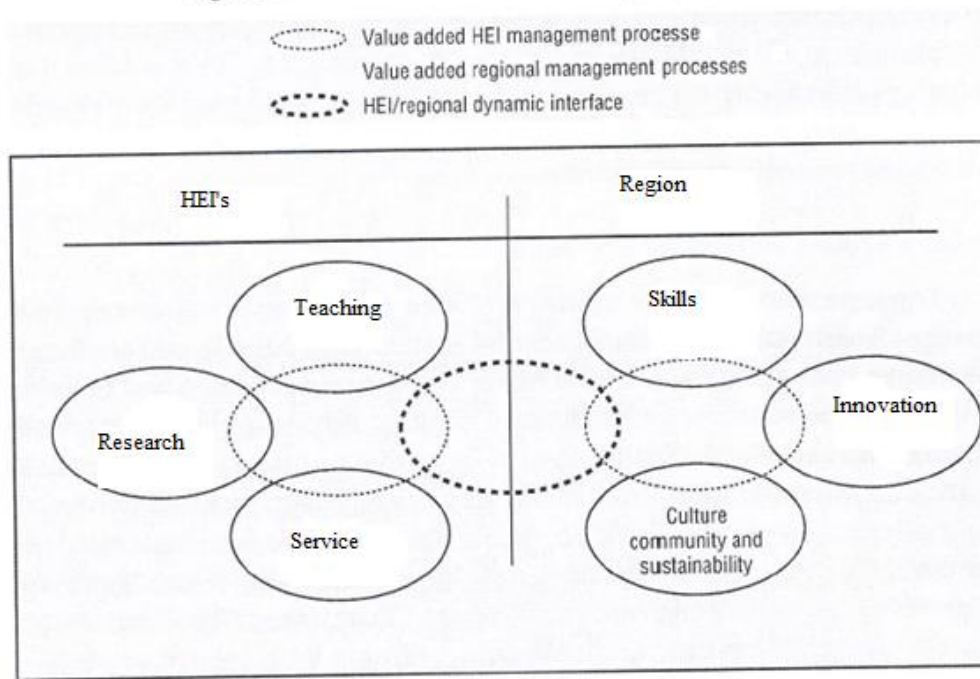
- Knowledge creation in the region through research and its exploitation via technology transfer (spin out companies, intellectual property rights and consultancy etc.).
- Human capital formation and knowledge transfer (localising the learning process by work-based learning, graduate employment in the region, continuing education, professional development and lifelong learning).
- Cultural and community development contributing to the milieu, social cohesion and sustainable development, on which innovation in the region depends.

The study specifically asked higher education institutions to critically evaluate how effective they were in contributing to the development of their regions based on the above conceptualization. More specifically, the study sought to investigate into the following:

- Contribution of research to regional innovation;
- Role of teaching and learning in the development of human capital;
- Higher education institutions contribution to social, cultural and environmental development;
- The role of higher education institutions in building regional capacity to act in an increasingly competitive global economy.

The analytical framework in that study adopted a closed model of the interface between region and higher education institutions shown in the figure 2.1 below.

Figure 2.1. Closed model of HEI/region interface



Source: Adapted from OECD, 2007

It is a closed model since an assumption is made that the activities of the higher education institution is limited to its regions, which in actual sense is not the case.

The left side of the framework points to the three conventionally identified roles of higher education institutions – teaching, research and service functions. The right side on the other hand summarizes the three key dimensions to regional development, namely innovation, skills and cultural and community cohesion including environmental sustainability. It focuses upon the processes that link together all of the components within the higher education institutions and the region into a learning system (Chatterton and Goddard 2000). According to them, within the individual institution, the challenge is to link the teaching, research, and community service roles by internal mechanisms (funding, staff development, incentives and rewards, communications, etc) that make these activities more responsive to regional development. These linkages represent 'value added management processes'. Also, within the region the challenge is to engage higher education in many of the facets of the development process (such as skills enhancement, technological development and innovation and cultural awareness) and link them with the intra-institutional mechanisms in a 'higher education institution/region value added management processes'.

The OECD (2007:11) asserts that, to be able to play their regional role, higher education institutions, must do more than simply educate and carry out research – “they must engage with others in their regions, provide opportunities for lifelong learning and contribute to the development of knowledge intensive jobs which will enable graduates to find local employment and remain in their communities”. According to them, this has implications for all aspects of these institution’s activities – teaching, research and service to the community and for the policy and regulatory framework in which they operate. Based on this insight, the argument being made which serves as the basis of the framework is that the regional mandate of higher education institutions can effectively be achieved if their principal activities – teaching, research and service – well integrated, are linked to the three dimensions of regional development of that particular region.

The rationale behind the adoption of such a framework in this study is due to the fact that the framework conceptualizes the notion of the regional development in a broader context. As put succinctly by Puukka and Marmolejo (2008) regional development is often thought of in economic terms only and with a focus on technologically based development drawing on a narrow concept of innovation. Thus the regional role of higher education institutions is not only linked to the contribution of research to regional innovation, but also the role of teaching and learning in the development of human capital and the contribution to social, cultural and environmental development. This broader conceptualization makes it possible to be applied to most institutions established with specific regional mandate both in the developed as well as developing countries and the case of UDS is not an exception. Above all, the main objective of UDS in northern Ghana captures this broader conceptualization of regional development as it aims to “address and find solutions to the environmental problems and socio-economic deprivations that have characterized northern Ghana in particular and are also found in some rural areas throughout the rest of the country” (UDS Website, www.uds.edu.gh).

Also, the framework advocates that the regional role of higher education institutions, the “third mission”, should not be isolated from its core functions of teaching and research but need to be integrated. Besides, the framework fit well into the purpose of the study and the sort of research questions that have been posed.

2.2.2 Some reflections and the relevance of the Land-Grant Tradition to the study

Also, there are quite a number of useful lessons that can be learnt from the Land-Grant tradition and some of these are outlined as follows:

- The land-grant institutions aimed at creating more access to a larger group of individuals who were under-represented in the existing higher education institutions.
- Research activities that were embarked upon embraced both the principles of quality and relevance. Areas of focus in their scholarly work had a stronger link to the development needs and problems of their surrounding regions.
- Effort to disseminate research results to those who stood in need of them was strengthened through extension work.
- There was a strong governmental involvement in a number of respects, including continuous funding and infrastructural support.
- Both the federal government and state authorities played their respective roles towards the realization of the purpose of these institutions through appropriate policy and funding support.

This model of engagement can offer useful insights into our case study in the sense that both the land grant universities and UDS have several things in common.

In as much as the Land-Grant universities had an act (Morrill Act 1862) leading to their establishment, UDS also had a law (PNDC Law 279) in place that led to its establishment. More importantly, the legal instruments in both cases clearly stated their specific mandates and their areas of focus were clearly stated. While the key mission of the Land-Grant universities was into teaching and research in agriculture, UDS was to emphasize particularly studies in agricultural science, medical and health sciences and integrate development studies. UDS as well was to have a closer relationship with the people of northern Ghana and disseminate the result of its research work through extension services. Finally, though the land-grant tradition took place in the US, a developed country, and UDS finds itself in the most deprived part of a developing country, Ghana, at the time of the establishment of the land grants institutions US was not as developed like today and many of these institutions

were in less developed states. Thus, it is clear that the Land-Grant tradition can offer useful insight into the case study on how UDS is responding and engaging in regional development and the challenges it faces in that direction.

2.2.3 Study proposition

Drawing on the literature review, analytical framework of the OECD, as well as lessons from the American Land-Grant model of engagement, the following analytical propositions have been formulated:

- For higher education institutions to respond effectively to their regional development mandate their teaching function must be linked to the development of the skill needs of their surrounding regions.
- For higher education institutions to respond effectively to their regional development mandate, their research function should have a stronger focus in enhancing the innovation capabilities of their surrounding regions.
- For higher education institutions to respond effectively to their regional development mandate, their service function needs to be linked to the social and environmental development of their surrounding regions.
- The regional development role of higher education institutions is shaped by the institutional characteristics, regional characteristics, and national regulatory frameworks.

These four analytical propositions provided a four thematic focus for the analysis of the data for this study: response to the development of human capital; response to regional innovation capabilities; response to social and environmental development; constraining factors to the regional development role.

3 METHODOLOGY

This chapter sets out to present the process of data collection and the analysis of data. More specifically, the chapter discusses the research approach and the design employed in the study, the sampling technique, the data collection instrument as well the data collection procedure, data analysis approach as well as reliability and validity issues, and ethical issues.

3.1 Research Approach

Patton (2002:13) advises that the choice for a particular approach in a study should be pragmatic since some questions lend themselves to numerical answers while others don't. This is supported by Silverman (2010) as he argues that in choosing a method, everything depends upon what we are trying to find out. A critical assessment of the nature of the research questions that are investigated in this study and its overall purpose of having an in depth understanding of how UDS is responding and engaging in regional development in Northern Ghana makes the choice of the qualitative approach appropriate. This is supported by Creswell (2007) as he claims that qualitative studies are particularly relevant when the researcher poses a "how" or "why" nature of problem statement.

According to Bryman (2008) qualitative research usually emphasizes words rather than quantification in the collection and analysis of data. It has an inductive view of the relationship between theory and research; it stresses the understanding of the social world through an examination of the interpretation of that world by its participants and also views social properties to be the outcomes of the interactions between individuals. To Denzin and Lincoln (2000) cited in Creswell (2007), qualitative research entails interpretive and naturalistic approach to the world. They indicate that qualitative researchers study things in their natural setting, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them.

3.2 Study Design

The research design, in the most elementary sense, is the logical sequence that connects the empirical data to a study's initial research questions and ultimately, to its conclusions (Yin

2003). In other words, it serves as a plan that guides the researcher in the process of collecting, analysing and interpreting data.

In this study, the case study design is employed. Generally case studies aim at studying a particular case or a small number of cases in depth and detail. Keith Punch (1998) cited in Silverman (2010:138) observes that while there may be a variety of specific purposes and research questions, the general objective of a case study is to develop as full understanding of that case as possible.

To Yin (2003), a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clear-cut. However, Woodside (2010:2) argues that case study research is not limited to contemporary phenomenon or real-life context, especially when boundaries between phenomenon and context are not clearly evident as defined by Yin. To him, the defining feature of case study research lies in the supreme importance placed by the researcher on acquiring data resulting in describing, understanding, predicting, and/or controlling the individual case.

This view is also supported by Bryman as he emphasizes that in a case study, the case is an object of interest in its own right, and the researcher aims to provide an in-depth elucidation of it (Bryman 2008:54). As he puts it, “unless a distinction of this or some other kind is drawn, it becomes impossible to distinguish the case study as a special research design, because almost any kind of research can be construed as a case study”.

This design approach is appropriate for the study since in this study, how a particular university, UDS, is responding and engaging in regional development in northern Ghana is to be investigated in detail.

University for Development Studies represents an interesting case since it is the only university established in Ghana, a developing country, with an explicit mandate to assist regional development. Its regional environment, the three northern regions of Ghana, is the most deprived and lag behind other regions in Ghana using various indices of measurements (Kaburise 2003). Furthermore, little is known about how individual higher education institutions in Africa, with explicit regional development mandates are responding to such a mandate and since regional and institutional context differ from one another, a case study into

how UDS is responding and engaging in regional development represents a relevant case. As it has been pointed out in the analytical framework presented in the previous chapter, to engage in regional development higher education institutions need to integrate their principal activities of teaching, research, and service and link them to the skill needs, innovation, and social, cultural, and environmental development of the region in which they operate. But how does this work out in higher education institutions that find themselves in an economically disadvantaged region like the case of UDS.

3.3 Data Collection Instruments

Data in case studies may come from six sources: documents, archival records, interviews, direct observation, participant observation, and physical artifacts (Yin 2003). Yin asserts that a major strength of case study data collection is the opportunity to use many different sources. In that respect, in this study both interviews and documentary data were used as data sources in the study.

- **Interviews**

I employed the use of semi-structured interviews to gather the required data from the respondents. According to Bryman (2008) semi-structured interviews refer to a context whereby a researcher has a series of questions or fairly specific topics to be covered, but has a great deal of leeway in how to apply. Questions may not follow on exactly in the same way outlined on the schedule and also questions that are not included in the guide may be asked as the interviewer picks up on things said by interviewees. Thus, there is a great deal of flexibility.

In the present study, an interview guide was prepared based on the analytical framework of the study.

- **Documents**

Yin (2003:87) emphasizes that for case studies, the most important use of documents is to corroborate and augment evidence from other sources. In that vein, this study supplemented the interviews with a review of some selected documents, including university reports on Outreach programmes, annual reports on research activities, Vice Chancellor annual report

and the policy document that establishes the university. With these, some were sourced online from the university website while others were collected at the setting.

3.4 Selecting informants for interviews

Qualitative research uses non – probability samples for selecting the informants for the study. Here, units are deliberately selected to reflect particular features of groups within the sampled population. There are quite a variety of sampling techniques that can be employed in qualitative research but in this study I employed purposive sampling technique in selecting the respondents during the data collection process.

According to Patton (2002) in purposive sampling, cases are selected because they are “information rich” and illuminative, that is, they offer useful manifestations of the phenomenon of interest. According to him, the power and logic of purposeful sampling derive from the emphasis on in – depth understanding and this leads to selecting information rich cases for study in depth. On his part, Bryman (2008) indicates that the goal of purposive sampling is to sample cases/participants in a strategic way, so that those sampled are relevant to the research questions that are being posed. In other words, the researcher samples on the basis of wanting to interview people who are relevant to the research questions.

Considering the overall objective and nature of the research questions to be investigated in this case study, the researcher needed to select respondents strategically from selected units within the case, UDS, that will provide relevant information on how the university is responding to the development of the skill needs of northern Ghana, regional innovation, and the contribution to social and environmental development. This could not be achieved from collecting data from only one unit but from various units. With this in mind, the researcher drew respondents from the University’s central administration, Deans of selected Faculties and Heads of Department (Agriculture, School of Medicine and Health Sciences), the unit in-charge of the University’s Outreach programme, the Centre for Continuing Education and Interdisciplinary Research (CCEIR), some senior academics, and the Alumni section. In all thirteen respondents were recruited from these units for the study.

It should be noted that the researcher could not have selected respondents from all Faculties in the university due to time and logistical constraints. University for Development Studies is a multi-campus institution, with its four campuses spread across the three administrative

regions of Northern Ghana. The researcher considering this selected the campuses of Tamale, where the Central administration, the School of Medicine and Health Sciences, and CCEIR are located, and the Nyankpala Campus, where the Faculty of Agriculture and the Faculty of Renewable Natural Resources are located. The researcher selected these units since he believes that these units will provide us with the relevant answers to our research questions.

The rationale for the choice is explained as follows. First of all, the central administration is responsible for the day to day running of the university and coordinates activities in all the campuses and hence was in a better position to provide information on institution-wide initiatives and programmes that are linked to their regional development mandate in northern Ghana. Also, CCEIR serving as the main research centre for the university, among other things, facilitates and coordinate the research activities of all faculties in the university. Also, the choice of the two faculties was informed by the policy expectation on the university, which specifically mentions these two to be pursued by the university, and the fact that about a greater fraction of the people in northern Ghana engage in Agriculture as a source of livelihood. Furthermore, the outreach unit coordinates the outreach activities of the university while the Alumni section is created to among other things collect comprehensive data on graduates entering into the labour market. Thus, all these units have direct links to the regional role of the university, and hence their selection.

3.5 Data Collection Procedure

It was necessary to obtain permission and authorization for the data collection at UDS and also the individual respondents involved in the study.

Before my visit to Ghana, I sent an email to the Registrar of UDS seeking permission to conduct such a study in the university together with a brief description of the study (study purpose and objectives). My intention of conducting the study in the university was confirmed by the registrar.

In addition to this, I collected an introductory letter from the University of Oslo (Appendix A) and this was presented to the Registrar during my visit. The Registrar then gave me an authorization letter (Appendix B) to carry out the data collection exercise in the university. I dispatched this authorization letter to the various selected units and made appointments with individual respondents on dates for interviews and served each respondent with an interview

guide. This process took a week, thus the interview session begun in the second week of my visit to the setting.

In all 13 respondents were interviewed and out of this 12 of the sessions were recorded on a digital recorder and transcribed in verbatim. However, the remaining one, one of the Heads of Departments at the Faculty of Agriculture, declined being recorded, thus I took notes during that session. Besides, a preliminary assessment of the data gathered during each interview session was undertaken. Interviews were held in the offices of the respondents and these were generally quite places. Interview sessions lasted between one and half and two and half hours and the data collection took five weeks from the 16th of January to 14th February 2011.

3.6 Data Analysis

Qualitative data analysis is seen as the process of resolving data into its constituent components, to reveal its characteristic elements and structure (Dey 1993). According to him, the researcher goes beyond just description of the data but leading to interpretation, explanation, understanding, and perhaps even predicting. To Patton (2002:432), qualitative data analysis involves reducing the volume of raw information, sifting trivia from significance, identifying significant patterns, and constructing a framework for communicating the essence of what the data reveal. In short, it is this stage that the researcher handles the corpus of data gathered on the field in order to bring meaning and understanding to it.

Creswell (2007) observes that qualitative data analysis consists of preparing and organizing the data for analysis, then reducing the data into themes through a process of coding and condensing the codes, and finally representing the data in figures, tables, etc. so that researchers can offer an interpretation in light of their own views or views of perspectives in the literature. What it means is that in order to bring meaning into the volumes of data gathered through a qualitative study, a certain process needs to be followed.

In this study, the researcher after the collection of the data transcribed all the digitally-recorded interviews in verbatim. This was to enable me to capture the views expressed by respondents in their own words. The transcribed material and the documents gathered were later read through several times with close attention being given to emerging themes in the data. As pointed out by Agar (1980) cited in Creswell (2007:150), researchers read the

transcripts in their entirety several times trying to get a sense of the interview as a whole before breaking it into parts. Thus, upon reading through several times, the data was then categorised in light of the broad themes and subthemes to facilitate a detail analysis of the work.

According to Dey (1993:41), the categories we use are the organizing tools which allow us to sort out the heap of bits according to relevant characteristics and that without classifying the data, we have no way of knowing what it is that we are analysing nor can we make meaningful comparison between different bits of data. Thus this study made use of the following broad analytical themes - human capital development; building regional innovation capabilities; social, cultural, and environmental development; constraining factors to regional development role - to facilitate the analysis. These broad categorizations were informed by my overall research objectives and the research questions. All these broad themes had their respective subthemes.

After the categorization process, the data was presented through respondents' perspectives and my own interpretation. Attempt was made to compare views from various respondents as well as the documents in the analysis process. This was followed by a thorough discussion in light with the overall objective of the study, the study context, the reviewed literature and the analytical framework.

3.7 Validity and Reliability Issues

According to Schwandt (1997) cited in Creswell and Miller (2000), validity refers to how accurately an account represents participants' realities of the social phenomenon and is credible to them. In other words, it is seen as whether the empirical measure of a study properly represents the actual meaning of a phenomenon or "whether or not the researcher is calling what is measured by the right name" (Kirk and Miller 1986, pp. 69).

It should be acknowledged that the content and usefulness of validity is a controversial issue in qualitative methodology and research (Kleven 2008) since many perspectives exist regarding it in terms of the definition of it, terms for describing it, and procedures for establishing it (Creswell 2007). While some find the concept of validity irrelevant and inappropriate in association with qualitative research, others consider it to be an important concept also in qualitative research.

However, Klevén points out that there seems to be an agreement among qualitative methodologists that the concept of validity used in quantitative research is inappropriate for qualitative research. To him, the claim is that validity concept for qualitative research needs a different content and a different basis than the validity concept in quantitative research. Patton (2002) confirms this argument as he declares that validity in quantitative research depends on careful instrument construction to ensure that the instrument measures what it is supposed to measure. The instrument must then be administered in an appropriate, standardized manner according to prescribed procedures. In that case the focus is on the measuring instrument. However, he points out that in qualitative inquiry, the researcher is the instrument and thus the credibility of qualitative methods, therefore, hinges to a great extent on the skill, competence, and rigor of the person doing the fieldwork.

In spite of the different perspectives and array of terms for validity, it is observed that qualitative researchers need to demonstrate that their studies are credible. Thus, some common procedures for establishing validity in qualitative studies have been provided by several authors. To Creswell and Miller (2000), qualitative researchers routinely employ member checking, triangulation, thick description, peer reviews, and external audits.

For the purpose of this study, the strategies that were put in place to safeguard its validity during the data collection and the analysis of the data are presented below. In the first place, the validity was ensured through the application of triangulation. With this approach the goal is to increase the validity of your findings by collecting data from multiple perspectives (Denzin 1970 cited in Marvasti 2004). In other words, researchers make use of multiple and different sources of data, methods, investigators, and theories to provide corroborating evidence on the issue under investigation. In my case, I complemented the interviews of respondents with documentary data. Also, these respondents were selected from different units of the university so that views on the same issues could be easily cross checked so as to enhance the accuracy and credibility of findings.

Also respondent validation was employed through the interview process. Respondent validation suggests that we should go back to the subjects with our tentative results and refine them in the light of our subjects (Reason and Rowan 1981 cited in Silverman 2010). To Creswell (2007) it involves taking the data, analysis, interpretations, and conclusions back to the participants so that they can judge the accuracy and credibility of the account. Lincoln and Guba (1985) see this as “the critical technique for establishing credibility” though its inherent

challenges have been pointed out in the literature (Silverman 2010). In this study, in the process of the data collection, I summarized the main points from time to time for respondents' verification and it proved useful as an approach since the participants were able to crosscheck what they have said in the process.

Finally, interview sessions were taped recorded and transcribed in verbatim so as to capture the views expressed by respondents in their own words, which ensures the reliability.

3.8 Study limitations

This study has shed light on the number of ways that UDS is responding and engaging in regional development in northern Ghana. However, there are a number of limitations to the study that needs to be highlighted.

The first limitation to the study is the fact that UDS is a multi-campus institution with four campuses located in different geographical part of northern Ghana and as such I could not visit all Faculties. Though the selection of the Tamale and Nyankpala campuses was justified in section 3.4, a visit to the other campuses would have added more meaning to the study findings.

Secondly, the selection of my respondents mainly from the University with the exception of a visit to the Savannah Agricultural Research Institute which has a partnership with UDS was also a limitation. If the views of community leaders, local farmers, regional authorities and even the Education Ministry were also sought, it would have been fruitful.

Thirdly, my access to certain information from interviewees and documents became very difficult during the data collection process. While data on some of these were inadequate others were considered as confidential.

Finally, a study of this nature which investigates into higher education and regional development is a multidisciplinary area, and is still at an on-going stage in the process of theory building. In that respect theoretical arguments and conceptualizations have not been firmly established. This was a limitation in the conceptualisation of the study. The absence of established theories which could have been used to test their application in the case study remains a challenge for researchers in the field of higher education and regional development.

3.9 Ethical Issues

Every research activity needs to adhere strictly to research ethics. Bryman (2008:113) asserts that ethical issues cannot be ignored as they relate directly to the integrity of a piece of research and of the disciplines that are involved. Silverman (2010) also opines that because qualitative research inevitably involves contact with human subjects in the field, ethical problems are not usually far away. To him while these ethics may vary across disciplines and national boundaries, there are a number of general principles that most researchers would agree with. Most prominent among these are:

- Voluntary participation and the right to withdraw
- Protection of research participants
- Assessment of potential benefits and risks to participants
- Not doing harm

Thus considering the important part that the compliance to research ethics plays in any research endeavour, the researcher complied with ethical issues through the following steps:

- Data collection process begun only after the approval of the research proposal by the faculty of education (UIO) and also permission to carry out such a study at UDS was sought and granted by the university administration.
- The researcher sought the consents of all respondents involved in the study and they willingly offered themselves for the study.
- For every digitally-recorded interview, the researcher obtained permission from respondents before the use of the recording device and hence interviewees had every right to decline from being recorded.
- The researcher also provided references for all previous works used in the study.

4 STUDY CONTEXT

4.1 Introduction

The need to take account of context is a recurrent theme in qualitative studies (Dey 1993, p.33) because they are important as a means of situating action, and of grasping its wider social and historical import. It is important that the regional role of higher education institutions be addressed in recognition of the particular context- regional, institutional- in which the study is carried out since regions as well as the institutions themselves do differ from country to country and even within countries. In line with that, this chapter provides a background description of the case in its context. In doing so, the chapter begins with brief background information on Ghana, and then northern Ghana, and finally the profile of UDS. This is necessary to provide the contextual environment in which the study was carried out, and thus placing it in its proper perspective.

4.2 Background information about Ghana

Ghana, formerly known as Gold Coast and located in West Africa, shares boundaries with Cote d'Ivoire, Burkina Faso, and Togo and covers an area of 238,538 square kilometres. It is the first sub-Saharan country to gain independence on March 6, 1957. Administratively, it is divided into ten regions and sub-divided into 170 districts.

According to the Ghana Statistical Service, the mid-year population estimate for 2009 was about 23 million (precisely 23,416,518) while the life expectancy at birth of Ghanaians in years is 60 (UNICEF 2007). It is an ethnically heterogeneous society with Akan 49.3 percent, Mole-Dagbon 15.2 percent, Ewe 11.7 percent, Ga- Dangme 7.3 percent, Guan 4 percent, Gurma 3.6 percent, Gurunsi 2.6 percent, Mande- Busanga 1 percent, and other tribes 5.3 percent, according to the 2000 census. Thus, there are quite a number of ethnic groups with different languages even though English language serves as the national language and also the medium of instruction in schools. The social structure remains predominantly traditional, rural and informal, with close family links, while the population remains young, with relatively high but declining fertility and low mortality levels.

The primary sector (agriculture, mining and quarrying, forestry,) continues to dominate the economy through its contribution to output, employment, revenue generation, and foreign exchange earnings. Agriculture is the main economic activity and, currently, accounts for about 51 percent of the Gross Domestic Product (GDP) and about 54 percent of the labour force while 70 percent of the population is in the agricultural sector (Ghana Statistical Service 2009). Ghana is endowed with minerals such as gold, diamond, bauxite, manganese, as well as salt. Cocoa is the highest foreign exchange earner to the country.

According to the Human Development Indices (2009 p. 35), 27 percent of the population lie below the international poverty line of US\$1.25 a day, and 78.5 percent live below US\$2 a day. It is also estimated that between 1980 and 2010, Ghana's Human Development Index rose by 0.8 percent annually from 0.363 to 0.467 today, which gives the country a rank of 130 out of 169 countries with comparable data¹. The national currency is the Ghanaian Cedi.

4.3 Background to Northern Ghana²

Administratively, northern Ghana consists of three regions - the Northern Region, the Upper West Region and the Upper East Region. It covers an area 97,702 square kilometres, representing about 41 percent of the total land area of Ghana. According to Blench (2006) many indicators show that these three regions are the poorest in Ghana and indeed comparable in poverty to some of the poorest countries in the world, by the reckoning of the UNDP. About 80 per cent of the people in the northern Ghana depend on farming for their livelihood and this is mostly rain fed.

4.3.1 Upper West Region

The Upper West Region (UWR) is located in the extreme northwest of Ghana, bordering Cote d'Ivoire and Burkina Faso. It is typical Guinea Savannah, with a high density of typical tree species. The climate regime of UWR is semi-arid with annual rainfall of some 700 – 1200mm with a mean of three stations over 25 years of 989mm. The rain falls in a seven month season

¹ <http://hdrstats.undp.org/en/countries/profiles/GHA.html>

² Much of the information on the three regions of northern Ghana are available at: http://www.modernghana.com/GhanaHome/regions/greateraccra.asp?menu_id=6&sub_menu_id=489&gender=&menu_id2=14

from April to October. The region covers a geographical area of approximately 18,478 kilometres, consisting about 12 per cent of the total area of Ghana. The region is located in the Guinea savannah vegetation belt. The vegetation consists of grass with scattered draught resistant trees such as the Shea, dawadawa, and neem trees. The climate of the region is one that is common to the three northern regions. There are two seasons, the dry and the wet seasons. The wet season begins from early April and ends in October. The dry season characterized by the cold and hazy harmattan weather, starts from early November and ends in latter part of March.

The region's total population is 576,583, representing 3 per cent of the national population, of whom 276,445 (47.9 percent) are males and 300,138 (52.1 percent), females using the 2000 population census³ (Ghana Statistical Service 2002). The region's population is predominantly rural. The major ethnic groups in the region fall under the broad generic categories of the Mole Dagbon (75.7 percent) and Grusi (18.4 percent). The major languages of the region are Dagaare, Sissali, Wale, and Lobi.

The main economic activity of the people of the region is peasant farming. This is supported by the fact that 72.2 percent of the economically active group is engaged in agriculture or its related activities. Farmers of the region cultivate maize, guinea corn, millet, yam, rice, soya beans and cotton in addition to the rearing of cattle in large numbers.

The proportion of the population aged 15 years or older that is literate in any language is 73.4 percent, which is much higher than that of the national average of 42.1 percent. The 2000 census results show that only 25.4 percent of the region's population aged 15 years and older is literate in either English or a known Ghanaian language or both.

The region has ten hospitals, sixty health centres, one health post and three maternity homes. More than half of the available manpower of the health sector in the region (56.2 percent) is made up of supporting staff, while professional and auxiliary nurses make up 38.8 per cent. For instance, the 2000 population census revealed that there are only 13 doctors for a population of 576,583 giving a doctor to a population ratio of 1:44,353 (Ghana Statistical Service 2002). Also whereas almost all localities have a traditional healing facility, less than 2 per

³ Though there was a national census in 2010, its data is not ready yet.

cent of the region's localities have a hospital within the locality and only 11 per cent of localities have a clinic/maternity home facility within the locality.

4.3.2 Northern Region

The northern region, which occupies an area of about 70,383 square kilometres and accounting for 29.5 per cent of the total land area of Ghana, is the largest region in Ghana in terms of land area. It shares boundaries with the Upper East and Upper West regions to the north, the Brong Ahafo and the Volta regions to the south, and two neighbouring countries, the republic of Togo and La Cote d'Ivoire to the west.

The climate of the region is relatively dry, with a single rainy season that begins in May and ends in October. The dry season starts in November and ends in march/April. The main vegetation is classified as vast areas of grassland, interspersed with the guinea savannah woodland, characterized by draught resistant trees such as the acacia, sheanut, neem, and mango.

The main languages spoken in the area include Gonja, Dagbani, and Kokomba. The population of the region is 1,820,806 representing 9.6 percent of the country's population. The region continues to be sparsely populated. Despite having the largest land area of the country, it has the lowest population density at each of the censuses since 1960. It is indicated that the low population density of the region may be the result of the interplay between a harsh climate and ecology, migration, and poverty.

There is a wide gap in educational attainment between the country as a whole and the region. At the national level, 38.0 percent (33.1 percent males and 44.5 percent females) of the population 6 years and older have never been to school compared to 72.3 percent (66.6 per cent males and 77.9 females) in northern region. This disparity is great between females who have never been to school in the region (77.9 per cent) and those at the national level (44.5 per cent).

In the region, the bulk of the economically active population is employed in agriculture. Only 5.7 per cent of the workforce is made of professionals, administrative or clerical staff. The rest are in sales, services and transport, and production. Also, health facilities in the northern region are not adequate considering the population of the area. Access to clinics and hospitals

is confined to a few communities in all districts. In most instances, residents of the communities have to travel considerable distances to have access to these facilities. As such, maternal as well as child welfare services, among others, are not readily available. Individuals requiring emergency medical services are therefore at the risk of dying before reaching the health facilities.

4.3.3 Upper East Region

Upper East Region is located in the north-eastern corner of the country. It is bordered to the north by Burkina Faso and the east by the Republic of Togo, the west by Sissala in Upper West and the south by West Mamprusi in Northern Region. The land is relatively flat with few hills to the East and southeast. The total land area is about 8,842 sq km, which translates into 2.7 percent of the total land area of the country. The climate of the region is characterized by one rainy season from May/June to September/October. Also there is a long spell of dry season from November to mid February, characterized by cold, dry and dusty harmattan winds.

The population is primarily rural (84.3 percent) and scattered in dispersed settlements. With only 15.7 percent of the population living in urban areas, the region is the least urbanized in the country. In fact, together with Upper West, they are the two regions with a less than 20 percent urban population.

Agriculture, hunting and forestry are the main economic activities in the region. About eighty percent of the economically active population engages in agriculture. The main crops produced are millet, guinea-corn, maize, groundnut, beans, sorghum, tomatoes, and onions. Livestock and poultry production are also important. There are two main irrigation projects, the Veia Project in Bolgatanga covering 850 hectares and the Tono Project in Navrongo covering 2,490 hectares. Industrial activity in the region is generally low, with only one industry in operation at the moment. This is the newly built cotton ginnery at Pusu-Namongo (near Bolgatanga). Other existing industries are the Tomato Canning Factory (GIHOC) at Pwalugu, the Meat Processing Factory (GIHOC) at Zuarungu and the Rice Mills at Bolgatanga but are not operational. Other local “traditional” industrial activities include Kente weaving.

The overall levels of educational attainment are much lower in the region, compared with the country as whole. For instance, the proportions of the population aged three years and above that have no schooling or attended only pre-school is 75.7 percent in the region compared to 47.7 percent in the country as a whole. When educational attainment is restricted to the population aged 6 years and over, the proportion in the region which has never attended school is 71.8 percent. This proportion is higher for females than males.

The Ministry of Health's accessibility standard is to provide one health facility within a distance not exceeding 8 kilometres from a locality. It is shown that 47.1 percent of the localities in the region are within 15 kilometres of a hospital, but only 0.6 percent of these have the facility within their locality. Data from various sources of the Ministry of Health show that the human resource base of the health sector is generally inadequate.

4.4 Profile of UDS

The University for Development Studies (UDS) was established by the Government of Ghana in May 1992 by the Provisional National Defence Council (PNDC) Law 279 and it begun academic work in September 1993 with the admission of thirty-nine (39) students into the Faculty of Agriculture, (FOA), at Nyankpala. The Law which established the University made it a multi-campus institution geographically spread across the Northern part of Ghana. The campuses are located at Tamale, Nyankpala, (both in the Northern Region), Navrongo campus in the Upper East Region, and Wa campus in the Upper West Region.

The Vision Statement of UDS is "to be the home of world-class pro-poor scholarship"⁴. According to Kaburise (2003) this philosophy translates itself at UDS into a pedagogical style that emphasizes practically-oriented, community-based, problem-solving, gender sensitive and interactive learning. Also, the mission of the University "is to run programmes that will effectively and efficiently combine academic work with community-participation and extension"⁵.

The university presently runs six faculties, one school and two centres of excellence. The School of Medicine and Health Sciences which offers courses in medicine and three other

⁴ UDS website: www.uds.edu.gh

⁵ Available at: <http://www.uds.edu.gh/profile.php>

health related programmes is located in Tamale, the capital of Northern Region. The Faculties of Agriculture and Renewable Natural Resources are located at Nyankpala campus while the Faculty of Applied Sciences and the Faculty of Mathematical Sciences are located at the Navrongo campus. Also, the Faculties of Integrated Development Studies, Planning and Land Management, and Education, Law, and Business Studies are at the Wa campus in the Upper West Region. Most of these faculties run programmes at the Bachelor to the PhD level.

The aims of UDS as stipulated in the PNDC Law 279 Section 2 are:

- To provide higher education to all persons suitably qualified and capable of benefiting from such education.
- To undertake research and promote the advancement and dissemination of knowledge and its application to the needs and aspirations of the people of Ghana.
- To blend the academic world with that of the community in order to provide constructive interaction between the two for the total development of northern Ghana in particular, and the country as a whole.

Also, the functions of the University stipulated by the Law under Section 3 include:

- The University shall in pursuit of its aims under section 2 emphasize particularly studies in agricultural science, medical and health sciences, and integrated development studies.
- The University shall train students in methods of critical and independent thought and shall make the students aware of their responsibility to use their education for the general good of the Ghanaian society.
- The results of research and knowledge acquired through the teaching and work of the University shall be disseminated through extension services, publications and such other methods that are considered suitable by the University.

- The University shall develop and maintain close relationship with the various peoples of northern Ghana in particular and the rest of the people in Ghana in general in the promotion and pursuit of its aims.

(UDS Law 1992, pp.2)

4.5 Conclusion

The chapter has shown that UDS was set up in 1993 as a multi campus institution with an explicit mandate to blend its academic work with regional development in an economically disadvantaged area. Currently, UDS runs six faculties spread across its four campuses in northern Ghana. The chapter also shows that northern Ghana is composed of three administrative regions and remains as the poorest and most deprived part of Ghana. A greater fraction of the population is mostly rural and the main economic activity of the people is peasant farming, with few other “traditional” industrial activities. Among other things, educational attainment of the area falls below the national average, and there is poor health facilities and low infrastructural development in the place.

With this background information on the study context, the next chapter sets to present and analyzes the study findings.

5 DATA PRESENTATION AND ANALYSIS

This study sought to investigate how UDS is responding and engaging in regional development in northern Ghana with specific focus on how it is responding to development of human capital, innovation capabilities, and social and environmental development. The study also sought to illuminate the key factors constraining it in that direction. This chapter presents and analyzes the study findings on each individual research question.

5.1 HUMAN CAPITAL DEVELOPMENT

This aspect sought to investigate the strategies and programmes that have been initiated by the university to help in developing the skill needs of northern Ghana. In order to answer the question, I analyzed data from the interviews with respondents from the University's Central Administration, Deans of the Faculties and the Heads of Departments. Besides, some documents from the university were analyzed.

5.1.1 Recruitment of students from Northern Ghana

When respondents from the central administration were asked if the university has in place a policy that aims at promoting the recruitment of students from northern Ghana, they indicated that there is a specific policy in place. According to the respondents, applicants to the university come from all over Ghana. However, the general university policy is that the first forty percent of the students' places are recruited on merit and these could come from any part of the country. The next forty percent is reserved for the catchment area comprising the three northern regions and the Brong Ahafo Region while the last twenty percent is allocated to district sponsored students. Respondents indicated that with regards to the district sponsored students, they have agreement with specific districts to sponsor a certain number of students financially with the hope that they will go and serve those districts upon completion. They added that this component of the admission is done from one region to another on annual bases and that also comprises districts in northern Ghana. This implies that in addition to the forty percent allocation, districts in northern Ghana can as well benefit from the "district sponsored students" package.

However the interviews revealed that though this is an institution wide policy, it appears it is more pronounced in some faculties than others. For instance, when I interacted with the respondent from the School of Medicine and Health Sciences he expressed that:

“This policy regarding recruitment cut across all faculties in the university but it is more pronounced in the medical school because of numbers. It is a general university policy”.

The explanation given to this was that since the other faculties admit quite a large number of students, it is often assumed that many students from northern Ghana stand a chance of gaining admission, and thus the institution policy is normally not strictly applied. However, the Medical school has a small intake and hence the policy is strictly applied. It also appeared from my interaction with the Vice Dean from the Faculty of Agriculture that he is not aware of the existence of such a policy and even if it did exist, he felt that there are equally poor communities in other regions of Ghana and hence he does not see the justification for such a policy.

Respondents at the central administration also pointed out that creation of opportunities for more females from northern Ghana to be enrolled through their admission process is a policy goal. Respondents pointed out that the university realizing the wide gap in educational attainment between males and females in northern Ghana is making frantic effort to promote the admission of more females, especially in the sciences. One of the policy documents reviewed report as follows:

“The University is committed to addressing the issues of gender equity and mainstreaming, especially in relation to empowerment and poverty reduction. In Ghana, and particularly in Northern Ghana, gender and poverty are intricately and inextricably linked. Our admission policy in relation to gender is informed by findings, supported by research, that education is one of the ways through which poverty can be reduced. We are encouraging female enrolment through an admission policy that allows more qualified applicants to gain admission into our academic programmes”.

Vice Chancellor Report (2003:5)

What this means is that though the university policy aims at enhancing the recruitment of students from northern Ghana generally, special preference is made for females, especially in

the sciences since they stand a greater disadvantage than their male counterparts. The role of UDS in enhancing the recruitment of students from northern Ghana is supported by data on the region of residence of selected students by Ghanaian universities, Manu et al. (2007:83). In their survey at UDS, out of the total ten regions in Ghana, nearly 61 percent of the students surveyed were selected from the three northern regions.

However, though there is high enrolment of students from northern Ghana at UDS, what is not clear is whether UDS receives fewer applicants from other regions compared to northern Ghana, hence given applicants from the north a greater chance of being admitted or is as a result of the policy in place. This is because a look at the data shows that such a policy is more pronounced in the School of Medicine and Health Sciences than it is in other faculties. Meanwhile, intake at the School of Medicine and Health Sciences form a small fraction of the total enrolment of the university. Also my interviews with the Vice Dean of the Faculty of Agriculture, as has already been pointed out, and other respondents show that they are not even aware of such a policy at the University. Thus, it seems that the high enrolment of students from northern Ghana at UDS cannot be explained by the institution policy alone.

5.1.2 Localising the learning process

When respondents were asked how they draw on regional characteristics to aid teaching and learning, and how the learning process of UDS have been localized, respondents mentioned the adaptation of the curricula of the university which aims at integrating students into their surrounding communities. One of the respondents at the central administration commenting on the localization of the learning process indicated that:

“The university by its mandate and its methodology of teaching, research, and extension so far indicates that its programmes have a poverty focus. The curricular of the Faculties of UDS emphasize community entry, community dialogue, extension and practical tools of inquiry. Participatory appraisal and participatory technology development methodologies are incorporated in appropriate places in the various curricula to ensure that students appreciates that the poor need to be partners in attempts to reduce or eradicate poverty”

Respondents said that the Third Trimester Field Practical Programme (TTFPP)⁶, where students are integrated into communities in northern Ghana, deepens their understanding on the unique characteristics of northern Ghana. It was indicated that apart from the service role that the programme plays, it helps students to put the theoretical components of their respective programmes learnt in the two trimesters into practice in the third trimester. In the first year of the programme, students are to write a profile of the communities comprising the physical resource base, demographic characteristics, socio-political organization, agricultural and natural resources, science, technology and industries, special organization and social services of the communities in which they are located. I was informed that once they write their report on these, academics draw upon these in their teaching and learning. Respondents said that their stay in the communities as well as the reports they submit constitute six credits of the learning process in each academic year. Thus, students are well integrated into their surrounding communities through the programme.

The respondents at the School of Medicine and Health Sciences also indicated that the School has localized its learning process by adopting the Problem-Based Learning (PBL) approach. Given the bases upon which the School had to adopt such an approach the administrator of the school said that:

“The policy instrument establishing the medical school indicates that northern Ghana is a distinct ecological zone of savannah grassland and hence it has a peculiar type of diseases and hence there was the need to have a medical school located within the area to take care of those peculiar diseases which may not necessarily be in the south. As part of that justification, the school had to have a curricular which seems more modern than those being run in other medical schools. As such the school had to adopt the PBL student centred interdisciplinary oriented approach in the medical training”.

According to him, the PBL allows for some interactive teaching and moulds a holistic medical training beginning from year one and also involves the use of several district hospitals and their consultants/specialists and exposes students as well as medical care to the rural communities. Thus, the link between the students and the communities is strengthened through the teaching and learning approach.

⁶ A detailed description of the TTFP Programme is provided under the social and environmental development section of this chapter

5.1.3 Establishment of programmes in response to regional labour market needs

Universities in engaging in regional development, needs to respond to the needs of the regional labour market. Interviews with respondents from the Central administration, and the two Faculties revealed that UDS is adapting existing programmes and establishing new ones in response to regional labour market needs. Some examples through the interviews and documentary analysis are presented below.

One of the cases mentioned through the interviews was the establishment of the Faculty of Education, Law and Business in 2008 at the Wa campus, which was established in response to a pressing regional labour market need. The documents reviewed also support this claim, as it indicates that:

“The University for Development Studies was established in 1992 by the government of Ghana to blend the academic world with that of the community in order to provide constructive interaction between the two for the total development of northern Ghana in particular and the country as a whole. It is in response to this mandate that the Faculty of Education, Law and Business Studies was established in 2008 at the Wa campus. The planned programmes in education, law and business are directed to the practical and equity needs of northern Ghana in particular and rural communities in Ghana in general”.

(<http://www.uds.edu.gh/felbs.php>)

The respondent from the central administration explained that for instance with regards to the education component, they realized that the two universities in Ghana that offer courses in education and hence the training of teachers are all located in the southern part and that has resulted in the lack of teachers in northern Ghana. Realizing this, the University created such a faculty to assist in producing teachers for the education sector in northern Ghana.

From the Faculty of Agriculture, respondents made mention of the establishment of the Department of Agribusiness. A respondent from the department indicated that farmers in northern Ghana are mostly into peasant farming, and the faculty feels that agriculture need to be done in commercial form and this calls for the training of experts who will help farmers in that direction.

However, the interview with respondents showed that UDS has not established courses in response to the needs of specific local businesses and industries in the region. This could be explained due to the orientation of the University with its dominance in the social sciences and the humanities and perhaps the nature of the industrial activities in northern Ghana.

5.1.4 Promoting Lifelong Learning

Respondents were asked if UDS has instituted lifelong learning programmes that targets groups who combine work and schooling and how it is carried out in the university. Respondents indicated that UDS has instituted lifelong programmes that cater for non-traditional students. The university has established the Centre for Continuing Education and Interdisciplinary Research (CCEIR), a unit which among other things is to organize professional programmes for non-traditional students. The mission of the unit is as follows:

“The Centre for Continuing Education and inter-disciplinary Research exists to promote research and teaching for socio-economic advancement in Northern Ghana in particular and Ghana as a whole.... It organises professional training at the graduate level and short courses for capacity building for grass-roots development”.

(UDS Website, www.edu.uds.gh)

The unit which was established in 2000 was initially called the Centre for Interdisciplinary Research. Respondents at the central administration and also at the centre indicated that realizing the importance of lifelong learning in the emerging knowledge society, the component of continuing education was added to the unit. The addition of the Continuing Education component was to establish programmes for students who might not find it possible to combine work and regular education. In response to such a need, the Centre has initiated some distance learning programmes and also coordinates distance learning in other campuses of the university. At the moment distance learning programmes are ran in all the campuses.

My interview with the respondent from the CCEIR revealed that currently they have in place two career-oriented master programmes – MA in Environmental Security and Livelihood Change and MA in NGO Management and Rural Development through distance bases. He also indicated that there are plans to also run some short courses as well. This takes place at

the Tamale campus. Also, master programme in development studies is run at the Navrongo campus in the Upper East Region.

5.1.5 Graduate retention and employability into northern Ghana

When the respondents from the central administration were asked about whether there were any initiatives which facilitate the retention and employability of graduates into northern Ghana, they indicated that, on their part they have created two units, the guidance and counseling unit and the Alumni Office to play that role. They said that the guidance and counseling unit among other things organizes career and guidance seminars for final year students. Besides, the Alumni office is to keep records on past students and to monitor their employment records. However, when I went to the Alumni office to ascertain if there is a comprehensive record on the employability of past students in northern Ghana, I was told that there is no available data on that. They told me that they only keep addresses of students who complete studies at the moment.

Respondents also indicated that considering the deprived nature of the communities within which UDS is located, they feel that one potent means to enhance the retention of graduates in northern Ghana is to integrate students into the rural communities during their studies. Thus, to them the long term goal of the TTFPP is to inculcate into students favourable attitudes that will enable them to stay upon completion. On this the Coordinator of the TTFPP had this to say:

“Students engage in teaching and other community services but again that is not the only aim or rationale behind the programme. It is to build in them that attitude that will enable them to live in these communities upon completion. So if a student is trained as an agricultural extension officer, will he be able to stay and work in that deprived area. That is what we want”.

Nevertheless, they also pointed out that they are limited as an institution as the employability of graduate in northern Ghana is beyond their scope. For example, the Coordinator of the TTFPP added that:

“The university has in place programmes that educate students to be self employed. Some students have come together to develop business proposals but financing of

these initiatives is a problem. But it is not part of our mandate to act as guarantors for students to secure financial assistance from financial institutions”.

Considering the deprived nature of northern Ghana, the integration of the students in the communities in the course of their studies could play a role in stimulating their retention. But it should be pointed out that, that alone is not enough if especially their expertise does not have corresponding businesses in the communities in which they stay. In essence the effort of higher education institutions in regional development needs to be complemented by other national and regional policies.

5.2 Building the innovation capabilities in northern Ghana

This section sought to investigate whether and if so, how the research activities of UDS are linked to building the innovation capabilities of Northern Ghana. But as already pointed out in this study, the people of northern Ghana depend mainly on agriculture for their sustenance. As such this section investigated into how UDS is introducing innovative practices into agriculture and the mechanisms put in place to disseminate its research findings to local farmers in northern Ghana. Data gathered from the interview sessions with respondents from the central administration, Centre for Continuing Education and Interdisciplinary Research, and the Dean and Heads of Department at the Faculty of Agriculture were analyzed.

5.2.1 Introduction of innovative practices in Agriculture in Northern Ghana

My interview session with the Vice Dean of the Faculty of Agriculture revealed that the academics at the faculty have collaboration with the Savannah Agriculture Research Institute, a unit of the Council for Scientific and Industrial Research at Nyankpala, and they engage in research relating to food and fibre crop farming, for the purpose of introducing improved technologies to enhance agricultural productivity. According to him, they have programmes for the major crops cultivated in northern Ghana, including sorghum, millet, maize, groundnut, cowpeas, etc and that they have supplied farmers with different varieties of improved seeds.

Also, through the support of the German Agency for Technical Co-operation (GTZ) they are introducing farmers, among other things, into knowledge about dry season farming, chili pepper and bee keeping production. The vice Dean explained that since northern Ghana has a long period of draught, they realized that farmers in northern Ghana mostly become unemployed during dry season periods. In order to help them overcome such a situation, they are researching into varieties of crops that can withstand long period of droughts so that farmers can cultivate during the dry seasons. In the process, they have organized farmer groups and they are educating them how to do dry season farming so that during the dry seasons they will still remain employed. As part of the programme, women have also been grouped to be educated in how to develop the Shea nuts in order to improve the quality of their produce. It was added that most women in northern Ghana engage in Shea butter extraction as the source of income and that is why such initiative has also been taking.

At the Department of Animal Science, the Head of Department also revealed that they had an international partnership with the Veterinary Department of the University of Glasgow which aimed at improving the nutritional quality of animal feeds for local farmers. Farmer groups were formed to be educated on how to improve the nutrient level of their feeds.

Also, the Department of Agricultural Mechanization and Irrigation Technology is equipping local farmers with the expertise in building irrigational facilities and an academic in the Department whose speciality is in dam construction is helping farmers in that. They added that these initiatives are supported by international agencies – such as the EU and other donors.

5.2.2 Institutional mechanisms for knowledge transfer to local communities

When respondents were asked to identify institutional structures and mechanisms through which knowledge is disseminated to local communities, respondents focused on the importance of one to one consultation with local farmers. They indicated that from time to time, farmers who have specific problems meet academics for consultations and this is done without any charges. Also, the department of agriculture extension liaises with other departments and they meet farmers from time to time to demonstrate knowledge and technologies.

The Head of Department for Animal Science also indicated that previously they used to have some radio programmes where they disseminate their research findings and also offer advice on some best practices of farming but that could not continue due to lack of funds. He also added that they do discuss their research findings at forums with farmer associations but added that these are not necessarily local bodies.

Respondents categorised the research activities of the university into commissioned, where the project is initiated and supported by some international agencies, and non-commissioned research, which is their own individual research activities. The interview sessions revealed that apart from commissioned research or internationally supported projects, the dissemination of research findings directly to local members has not been effective. In my interview with the respondent at the CCEIR, he indicated that:

“For instance, for commissioned research they would organize what is called the validation workshop, where you go back to the communities and meet stakeholders, opinion leaders, and the general public and discuss the outcome of the research. The implications of the findings are brought to bear. In the case of our own research, finding money to do the research in itself is a problem, how then do you get resources to go back to the communities again”

What this is revealing is that though the creation of the extension department was to enhance the dissemination of scientific knowledge from the university to the local communities, it appears it is not carried out effectively as expected due to financial and other logistical challenges.

5.3 RESPONDING TO THE SOCIAL, CULTURAL, AND ENVIRONMENTAL DEVELOPMENT

This aspect sought to investigate into the sort of strategies/activities that have been initiated by the university aimed at promoting the social, cultural and environmental development in northern Ghana. The researcher analyzed the data gathered through the interviews and also reviewed available documents. The results are presented below.

5.3.1 Third Trimester Field Practical Programme (TTFPP)

Under this domain of regional development, respondents made mention of the institution of the Third Trimester Field Practical Programme which according to them was initiated in 1993 as the “university’s flagship” programme in the community.

By this, the University’s academic calendar is divided into three trimesters and a whole of the third trimester of eight weeks is devoted solely to practical field work in the local communities. Students from all faculties are required to live and work within the communities in northern Ghana during the third trimester throughout their four year degree programmes.

At their first year students are expected to be distributed to selected districts after a one week orientation as to what they are to do in the field. At the district level, the students are again distributed to selected communities. The programme for each year level is so structured that the same group of students work in the same communities for all the remaining third trimesters. They are expected to work in groups at all times and to come up with courses of actions for the communities and districts and to assist them to implement those actions.

Respondent indicated that in 2002/2003 academic year, the University embarked on an integrated approach to the programme. This modification entails the grouping of students from all the different faculties into one group. What it means is that, before then students were grouped on faculty bases. One of the document reviewed emphasize the importance of the shift to the integrated approach as follows:

“This integrated approach is informed by the growing awareness of the holistic approach to the solution of development problems of the deprived communities, which UDS has positioned itself to serve. This Integrated approach would therefore enable students to appreciate community problems and opportunities in a holistic manner through the perception and appreciation of such problems from various angles, secondly, the integration will help broaden the knowledge and experience of students, as they would have the opportunity to interact and learn from each other. It will also foster in them the spirit of team work, which is very essential for work in a world that is becoming increasingly complex and requiring collective efforts to overcome challenges”. (UDS Website: www.uds.edu.gh)

Among other things the TTFPP aims at:

- *Promoting active and constructive interactions of both students and staff with the local communities to facilitate socio-economic transformation.*
- *Exposing both students and lecturers, practically, to the nexus of development problems of deprived communities in Ghana and particularly in Northern Ghana.*
- *Placing the University in a better position to provide useful services through the exchange of knowledge and its application to address the intractable development needs and aspirations of these communities.*

(www.uds.edu.gh)

Respondents indicated that students are put into groups of ten and spread into the surrounding communities of the university. The students identify development challenges, goals and opportunities in the communities and design ways of working towards those goals and aspirations with the communities. Each group is assigned an academic who serves as the supervisor. Academics go to the field themselves to ensure that students go about their work according to the work schedule and to ensure that students identify and apply the right techniques and methods. Besides, respondents indicated that if communities have specific developmental challenges, the academics do follow-ups to ensure that projects initiated by the students are successfully completed.

When asked of what informed the establishment of such a programme, respondents linked this to the goal of the university which aims at blending its academic work with community development. The Coordinator of the programme expressed that:

“UDS was set with a specific mandate. It was located in an economically challenged area and it was supposed to study the developmental issues of the area and come out with measures of solving those developmental challenges. Thus, we were mandated to blend academic with that of rural development”.

One of the documents reviewed also supported the link between this programme and the institutional mandate of the university but also the vision that it has set for itself as an institution:

“The mandate, vision and mission of the University for Development Studies enjoin it to work closely with the communities and grassroots institutions to ensure that poverty

alleviation measures are worked in participatory problem-solving manner. That means both students and academics must be able to interact intimately with community members to identify with them their problems and again with them proffer solutions. It is TTFPP that ensures that this is achieved". (VC Report 2003)

What students are expected to do by staying in the rural communities in each academic year is summarized in the document as follows:

"The three year intensive engagement is an iterative process that introduces the student to community studies in the first year. In this introductory phase the student is equipped with the necessary skills to enable him/her, together with the community members collect and analyze information leading to the preparation of a community profile. In the second year the students and their respective communities build on what was done in the previous year to enable them identify the development problems and challenges. In the third year students work in smaller groups on specific problem areas together with the community members with a view to formulating specific interventions". (TTFPP Student Field Guide, pp.2)

In addition to the community profiling, identification of major challenges and offering possible solutions, the study shows that students also engage mostly in teaching at the basic and secondary schools in their located communities. Besides, as part of the programme, they give public talks to the communities – issues on HIV/AIDS, encouraging the communities to send their children to school, and good environmental practices were cited as some of the things they do. Respondents also mentioned that in cases where there are ongoing national as well as regional policies to be implemented, students use the opportunity to educate community members on those policies. Examples were made of the redenomination of the Ghanaian currency in 2007 and the national identification exercise in 2009. Commenting on these ways that they are helping to promote the social and environmental development in the communities, one respondent indicated that students demonstrate what they tell them by living with them over that period. He indicated that:

"In fact, students do not only tell them these, but they also live for them to see. They act as role models...these are communities where the highest level of education for most of the inhabitants is Junior Secondary School and maximally Senior Secondary School. So when they go there they act as role models for the younger ones, especially when they have females among them".

Another area of social development that respondents and the documents reviewed pointed to as being strengthened is addressing issues related to gender mainstreaming. That is promoting gender equality in the local communities. According to respondents these are communities where gender inequality is high. Respondents pointed out that because students stay in the communities for a long time, it affords them the opportunity to interact with all groups and not only community leaders. The Coordinator of the TTFPP indicates that:

“When development workers, researchers and students pay brief one or two-day visits to communities, they hardly get the opportunity to interact with everybody except household heads who are usually males. Even if one succeeds in meeting with those who are not heads of households, they will usually be males. When students go and stay in the communities for several weeks, the level of interaction with all the people in the village is heightened. There is gender and generational interactions and all male and female community members as well as male and female students benefit”.

In essence the TTFPP as an initiative stands a greater chance of enhancing the social, cultural, and the environmental development of northern Ghana. Considering the fact that student groups are formed in an integrated manner, they can combine their experiences, skills and knowledge from their respective programmes to help develop the social, cultural, and environmental development of the communities.

5.3.2 Engaging in public debate through the institution of the “Harmattan School”

When respondents were asked of other initiatives instituted with the intention of contributing to the social and environmental development of northern Ghana, they made mention of the so-called “Harmattan school”. A senior University Administrator indicating what this initiative stands for indicated that:

“The harmattan school series was instituted by the University for Development Studies to provide a platform for academics, development practitioners, and other stakeholders to deliberate on development issues concerning northern Ghana in particular, and Ghana as a whole”

They indicated that since the northern Ghana is a deprived area, they need to bring to the attention of the government, other development agencies, and the general public the pressing

issues and the developmental challenges in the area. Thus, they have created that forum to engage in discussions on the developmental challenges and offer possible guidelines as to how they can be solved for the total development of northern Ghana. It was instituted in 2007 and usually organized in February (i.e. in the middle of the Harmattan season which runs from December to March each year). They indicated that press are invited to translate the proceedings into the local languages.

I asked from respondents some of the issues that have been addressed in the School and their link to the social as well as environmental development of northern Ghana. They indicated that in 2010, the Harmattan School focused on conflict and peace building in northern Ghana. When asked how they perceive that to be linked to the social development of the north, a respondent from CCEIR expressed that:

“We believe that development is only possible when there is peace and without peace it becomes very difficult to undertake any sustainable development and given the fact that the university is located in northern Ghana and the fact that northern Ghana has a disproportionate number of conflicts compared to the southern part, for that we think the best way for sustainable development is to find ways of solving the conflicts. For instance, if you go to the Bawku case⁷, you go there and the Local Assembly will tell you that large chunk of their revenues go into maintaining peace in the area. This was money that was supposed to be used for development and is being used to maintain peace or resolve the conflicts. So through the school, community leaders and the general public engage in dialogue to see how to find a lasting solution to these conflicts.

This year, 2011, the university held its 5th series of the Harmattan School in Tamale from the 17th to 18th February on the theme: Bridging the development gap between Southern and Northern Ghana: Prospects and challenges of the Savannah Accelerated Development Authority (SADA). SADA is an independent agency mandated by Act 805 of 2010 to coordinate a comprehensive development agenda for the northern savannah ecological zone in Ghana. The school subjected this developmental agenda in northern Ghana into critical analysis. After the two days’ deliberation, a communiqué on the possible challenges and development issues in Northern Ghana which have the potential to inhibit the successful

⁷ Bawku is a town in Upper East Region of northern Ghana and there has been a series conflicts in the place since December, 2007

implementation of SADA as well as possible recommendations were released to the Government, Civil Society Organizations, Traditional leaders and other Stakeholders.

5.3.3 Improving the health needs of the people of Northern Ghana

As a way of helping to improve the health needs of the people in northern Ghana, the School of Medicine and Health Sciences has in place a yearly programme dubbed Community-Based Education and Service (COBES). A respondent at the School had this to say on how such a programme is carried out:

“As part of the problem-based learning, we have a component that we call Community-Based Education and Service. And in block point 7⁸ of their training, students are expected to go in groups of ten and stay in some rural community but there will be a clinic there. They go and stay there for six weeks and as part of the stay go to these clinics and find out the common diseases that are reported on the daily basis so they can help come out with some solutions through their medical training. It is done every year and they do continue in the same community”.

This programme is specifically for the School of Medicine and Health Sciences. Based on their findings, the student groups organize community talks and education on health issues and how to control these common diseases to the local community members. The role played by academics in the programme, as pointed out by the respondents from the School, is to go round from time to time to see that students are doing what is expected of them. The programme has it that from the fifth year, the students are to be stationed in the clinics and hospitals where they can engage in actual medical works. A respondent from the School indicated that:

“From the fifth year we have a programme we call the community posting and they will be sent to the communities to work under doctors in smaller numbers. At that level they can do some OPD type of consultations. That is yet to take place”.

⁸ The course structure of the Medical School in each academic year is divided into seven modules (blocks) and the seventh module or block is for the Community-Based Education and Service

As seen from the quote, this component is yet to take place this year due to some problems that the school has faced since it was established in 1996. But that will be presented under the challenges hindering their regional role.

With regards to the role that academics play to improve upon the health needs of northern Ghana, interviewees from the medical school indicated that since UDS has not gotten its own Teaching Hospital, they are currently using the Tamale Regional Hospital as their teaching hospital where the fifth year students are currently stationed. Thus, as they are there, the academics who are medical doctors and employees of UDS support the human resource strength of the regional hospital. Respondents however indicated that they receive allowances for what they do by the Ministry of Health. Thus, both medical students and academics are contributing to the health needs of the region.

5.3.4 Enhancing social, cultural, and environmental development through research

One other way that respondents indicated that UDS is responding to the social, cultural, and environmental development of northern Ghana is through the research activities of the Centre for Continuing Education and Interdisciplinary Research (CCEIR). The centre created initially as a centre for interdisciplinary research conducts research in the domain of development and social sciences and liaises with civil organizations to disseminate research findings for development and policy advocacy for the socio-economic advancement in northern Ghana in particular and Ghana as a whole.

The respondent from the centre expressed that:

“The centre’s research agenda is driven by the philosophy of the university which emphasizes community-based problem solving approach for development. The research mission of the centre therefore establishes the inextricable link between research and socio-economic development using evidence-based research to influence policy for quality of life”.

According to him, CCEIR currently has four research areas: Peace building and conflict management; Culture and endogenous knowledge systems; Health economics and social protection; and Gender and development. The documents reviewed explain the research areas as presented in the table 1 below.

Table 5.1: The research focus of CCEIR and its rationale

RESEARCH FOCUS	RATIONALE FOR THE AREA OF FOCUS
Peace Building and conflict management	Peace and development are intrinsically inter-twined. Given that peace is the main ingredient for socio-economic development, the centre conducts evidence-based research in this discipline for advocacy to inform policy formulation
Culture and endogenous knowledge systems	The centre recognizes the imperative role of indigenous knowledge systems in sustainable community development. We therefore conduct research into this area so as to establish the missing link between culture and development in the contemporary society.
Health economics and social Protection	There is ample evidence demonstrating the links between health and productivity. Good health leads to increased productivity and social protection promotes quality of life and economic empowerment of vulnerable groups. Our research in this domain provides the evidence using economic principles to promote health and economic development.
Gender and development	Gender mainstreaming is an integral part of the University's strategic plan. In pursuit of this, the Centre conducts research in the domain of Gender empowerment and development.

Source: UDS website, www.uds.edu.gh

It is evident from above that CCEIR has quite a number of research areas that are linked to the social development of the people of northern Ghana. But what respondents pointed out was that at the moment they have not gone into industries even though it is an interdisciplinary research centre.

5.4 CONSTRAINING FACTORS TO THE REGIONAL ROLE OF UDS

The first three sections of this chapter investigated into how UDS is responding and engaging in regional development in northern Ghana. This part presents the sort of factors that respondents perceive to be hindering the successful accomplishment of the regional role of UDS. I categorised these factors into national, regional and institutional factors to facilitate the analysis.

5.4.1 National factors

5.4.1.1 *Inadequate funding of engagement activities by the national government*

One key factor that respondents pointed out that constrains the regional role of UDS which falls under this domain is the inadequate funding for regional engagement activities by the national government. Respondents from the central administration indicated that the annual funding to UDS by the national government is based on full-time student numbers and this does not make room for the engagement activities. Thus, the university implements community engagement programmes using internally generated funds. Respondents indicated that the university set aside 30 percent of the academic user fees paid by students and 10 percent of funds generated from application fees solely for the TTFPP. The coordinator of the outreach programme had this to say when commenting on the state of affairs:

“The financing of our engagement activity is the biggest challenge. Supposing you have thousand students and you are to group them into tens and spread them across hundred communities, it is a large task. Sending the students there is a logistic problem, monitoring of the programme is a logistic problem. And we do not have any special subvention from the national government. They see it as an academic programme”

At the CCEIR this assessment was supported, where the respondent claimed that:

“Except for commissioned research activities, all other research activities are financed by individual academic staffs and the university in some cases. The research centre receives no specialized financial package to be used for research activities from the government”.

However, the respondent pointed out that each year academic members receive what they call “book and research allowance” which is meant to be used for research by each academic. He explained that, these resources are distributed to all universities in the country and there is no specification as to whether the research activity should have a regional relevance or not. Besides, he indicated that there is lack of monitoring on whether that money is even used for research purposes or not, and more so, that resource is inadequate to be used for any meaningful research activity.

At the faculty of Agriculture I was informed by respondents that due to the lack of funding, they have the difficulty in disseminating their research findings to the local farmers. One of the Heads of Department had this to say:

“The farmers have problems and when we do research and come out with findings which we think can help them solve some of their problems then we do extension. But the extension component is not all that very strong because of lack of appropriate funding. So as for information we have but we have it on our shelves”.

Thus, the regional mandate of the university has not been accompanied by an appropriate funding scheme by the national government. Which could either mean that the regional role of higher education institutions, is not well understood by national authorities or they do not perceive the engagement activities of the university as a key component to the development of northern Ghana.

5.4.1.2 Lack of Policy support at national and regional level

Respondents also indicated that though UDS has a policy mandate to engage in regional development activities, such a mandate has not been followed by the appropriate policy supports both at the regional and the national level. This according to the respondents was seen in the fact that the university has not been actively involved in policies aimed at eradicating poverty in northern Ghana as well as other development plans in the area.

5.4.2 Regional factors

Here, respondents were asked to point out key factors in northern Ghana perceived to be hindering their regional role. Thus regional factors represent those factors peculiar to northern Ghana that are seen to be constraining their regional mandate. The factors that were pointed out are presented below.

5.4.2.1 Inadequate infrastructural development in northern Ghana

One regional factor perceived to be constraining the regional role of UDS was inadequate infrastructural development in northern Ghana.

From the Outreach unit, the respondents pointed out that the road network poses a challenge for the TTFPP programme. It was said that there are communities that are sizeable enough for

them to send students there but these communities cannot be reached by road and besides they do not have portable water. Thus, even though these communities stand in need and could benefit from the programme they are denied due to the lack of these social amenities in the area. They also pointed out that for health reasons, students are sent to communities that at least have a community health centre and because of that several rural communities do not also benefit from the outreach programme.

Also, the administrator at the School of Medicine and Health Sciences pointed out that as a result of these challenges in northern Ghana, staffs feel reluctant to accept postings to UDS. He said that at the moment they have problems in some areas of specialization and they have to rely on part time. He said in most cases staffs look at the prospects they will have for their families being in that deprived part of the country and that is having an impact on their work. He said northern Ghana generally lack good schools, proper housing, and poor medical facilities so staffs consider these before accepting postings to the place.

5.4.2.2 Lack of ability and readiness of community members to absorb university knowledge and graduates

Another challenge that was pointed out from the regional level was the lack of ability and readiness on the part of community members to absorb scientific knowledge and graduates. Respondents indicated that even where the knowledge will benefit the people they do not have the financial ability and the technical know-how to tap it. In explaining this, respondents claimed that there are instances where students and academics identify and come out with new techniques that can enhance the productivity of their farming activities but due to financial challenges these farmers are unable to support these programmes. In line with this one of the Heads of Department from the Faculty of Agriculture said the following:

“An example is, students who are trained in agriculture technology goes to the community and identify a challenge of lack of agricultural technical know-how, lack of use of resources. The students with their technical know-how, knew that these communities can do dry season farming. But the communities were not ready and capable of financing the students to stay with them. The knowledge of the students is needed by the communities but they are not capable of retaining them. The missing link is that of finance”.

In addition to that, it was pointed out that since many of the community members cannot read nor write they find it difficult to apply the new techniques that they have been introduced into.

From another respondent, there are instances where the acceptance of the community members to new knowledge becomes very difficult since according to him they are not ready to give way to new ways of doing things. Sharing his experience, he said that in one community where the people hunt a certain type of rodents, he tried organizing them to breed these rodents with the explanation that if measures are not put in place to breed them a time will come they will be extinct. According to him the people claimed that the rodents have been in their communities since the time of their forefathers so they do not see how they will be extinct. In that respect his effort did not yield any positive result. He said that the community members were not ready to accept the new ideas from the academic community. This state of affairs was supported by several respondents especially as they put it “in cases where scientific knowledge seems to conflict with their indigenous knowledge” community members are not ready to hold on to new knowledge.

5.4.2.3 The capacity of the regional economy to retain graduates in the region

When respondents from the central administration were asked how they perceive the capacity of the labour market in northern Ghana to retain graduates, they indicated that due to the fact that northern Ghana is a deprived area, most graduates tend up not getting jobs in the region upon completion. When asked if there is a mismatch between their programmes offered and the labour market needs in northern Ghana, they indicated that their programmes are well linked to the labour market needs, but only that very few job places are available. More so students do not have seed capital to start their own businesses in the region. Thus there is a high migratory pull of students to other regions.

When respondents were also asked if there is a systematic assessment by the university of the labour market needs in northern Ghana, they indicated that there is no such thing existing. I interacted with some few past students on the job situation in northern Ghana and they also supported the idea that finding jobs in northern Ghana hasn't been easy and they are still unemployed since they completed a year or two ago. But it appears that most of these students are mostly trained to be employed in the public sector and very few places are available in these public institutions.

5.4.2.4 Lack of specific role played by regional authorities

From the data gathered through the interviews with respondents at the central administration it revealed that the regional authorities of the three administrative regions of northern Ghana have no specific role or policy focus on the universities regional role and engagement activities. They indicated that they do not receive any financial or logistical support from regional authorities. It was explained that there is a poor coordination between the Regional Coordinating Council (RCC), which is the highest governing body of the region, and UDS. It can be argued that the function of the RCC is not clearly defined on how to integrate the higher education institutions into their development plans or it could be that the regional governments do not see the university as a central agent in regional development plans.

5.4.3 Institutional factors

These are factors peculiar to UDS itself that are perceived to be hindering their regional role. Some of the factors pointed out are internal structures which seem not to promote regional activities, inadequate infrastructural development of the university, and the lack of willingness of some academics to be involved in activities of regional nature.

5.4.3.1 Internal promotion requirement of the university

Respondents admitted that though the university's internal requirement for promotion recognizes "community service", they indicated that that is not carrying much weight in the career/promotion system. Many academics are not by that encouraged to engage in activities of regional nature. When I asked respondents the percentage that the community service represents in the promotion process they indicated that it constitutes fifteen percent. However, it was pointed out that the community service component of their job description is more of attending conferences to share research findings with little regional focus.

When I reviewed the university's promotion requirement, the section on community service supported that assertion raised by the respondents. The specific section on community services is documented as follows:

"List your activities outside normal University work since last promotion/appointment that you consider relevant and important to the University and the Community. These include radio talks, television appearances, newspaper publications, guest speeches,

Membership of National Boards/Committees, and Chairmanship of National and regional Professional societies”. (Promotion requirements for senior staffs)

Throughout the entire document, the above statement represents the only statement that deals with engagement activities in the promotion system of the university and it is obvious that it is not directly linked to activities in northern Ghana.

5.4.3.2 Lack of internal incentive structures

When I asked from the respondents if the university internally has instituted some incentive mechanisms to motivate academics and students for engaging in activities of regional nature, the response was that no specific incentive structures are in place. However, it was revealed that the university bears the transport cost of academics when they go to the field to supervise students on fieldwork. Quite apart from that there is no special incentive package in place to motivate academics or students in engagement activities. Most of the respondents saw this as a problem. One respondent expressed that:

“No special incentive package has been instituted. It is the normal civil or public servant thing that if you work out of your station, you are given a per-diem for living outside your normal place of residence. It is regarded as part of the normal work schedule of staffs. It is a problem”

When asked how the students are motivated in community engagement activities, I was told that for them it is a requirement since the university run trimester system and they are expected to participate in community activities to complete the academic year. As put by the Coordinator of the Outreach Programme:

“We tell them that this is our agenda, so it is only those who are ready to accept who join. When they are given the admission letter, we tell them that they have to engage in community activities in the third trimester as part of their training process”

One of the Heads of Department at the Faculty of Agriculture however, seems not to be bothered about the lack of incentive schemes to motivate staffs to be involved in activities regional nature. He indicated that:

“As for the university, it is a profession so you teach and you are paid at the end of the month. There is nothing like you need to be motivated before you do what is expected of you”

A critical look at the statement above demonstrate the level of understanding of some academics of the engagement activities of universities and probably for them they do not see it as a distinctive role of the university.

5.4.3.3 *Inadequate infrastructural development of the university*

One challenge that was also pointed out was the level of development at UDS, in terms of infrastructure and other logistics.

By this, respondents at the School of Medicine and Health Sciences mentioned the lack of well equipped teaching hospital for UDS as one of the key challenges facing the School. They pointed out that since 1996 that the Medical School was established, it has not produced its own doctors simply because the teaching hospital at Tamale that was to be used was not equipped and it also lacked the required human resource. Thus, their students go to University of Ghana, Accra and Kwame Nkrumah University of Science and Technology (KNUST) at Kumasi to continue their training at the clinical stages. The Administrator of the School had this to say:

“As medical students reached the clinical stages, they had to move to Korlebu Teaching Hospital and Komfoh Anokye Teaching Hospital to join students from the University of Ghana and KNUST respectively to graduate from there. So since 1996, UDS has not graduated its own medical students even though we have been admitting students. During that period even though they begin with UDS orientation, their orientation changes as they go to Korlebu and KNUST. In that respect their focus on communities that are rural and deprived changes. Thus making them feel reluctant to come back”.

He indicated that in 2007 they saw that it was becoming difficult for their students to go to those universities for the clinical stages of their training so they decided to start their own training. Respondent said even though the Medical School was established with clear mandate to train medical professionals for the northern sector of the country due to the lack of a teaching hospital, that mandate has not been achieved. They added that their first batch are

now in their fifth year of training and the training they are given them, with strong community integration in their training, they hope students will be prepared to stay in the rural communities upon completion.

5.4.3.4 Lack of unwillingness of some academics to engage in regional development activities

Another factor at the institutional level that respondents perceived to be hindering the regional role of UDS is the unwillingness on the part of some academics to involve themselves in activities of regional nature. Respondents indicated that some academics feel reluctant and even oppose the whole idea of community engagement activities carried out by the university since according to them they do not believe in those ideals. This concern was also supported by the documents reviewed. One of the documents expresses that:

“The engagement activity undertaken by the university is faced with opposition from some universities and professional bodies that find it difficult to adopt the new thinking. Besides, internal pressure also comes from academic staff members who subscribe to traditional thinking that does not expect universities to be engaged in this way with communities”.

However, it is also possible that the unwillingness on the part of some academics may stem from the fact that the engagement activity has no appropriate funding and incentive structures.

5.5 Summary of findings

Upon a careful analysis of the data presented above, a summary of the findings of each of the broad themes of the study is presented below:

(A) Human capital Development in Northern Ghana

- UDS allocates 40 percent of its admission place to applicants from its catchment area which comprises of the three northern regions and Brong Ahafo Region and also creating opportunities for more females to be enrolled through its admission process.

- UDS has localized its teaching and learning process by adapting its curricula to integrate students into communities in the third trimester of each academic year and also through the adoption of Problem Based Learning approach.
- Steps have been taken to introduce new academic degree programmes and adapt existing ones in response to regional labour market needs. But, there is lack of evidence of specific degree programmes meant to respond to specific needs of local industries in northern Ghana.
- In order to respond to the needs of non-traditional learners, the university has instituted lifelong learning programmes through the creation of the Centre for Continuing Education and Interdisciplinary Research.
- Graduate retention and employability in northern Ghana is facilitated by the university through the creation of the guidance and counseling unit, the Alumni section, and the integration of students in the communities through TTFPP.

(B) Building the innovative capabilities of northern Ghana

- UDS collaborates with the Savannah Agricultural Research Institute to engage in research aimed at introducing improved varieties of seeds to local farmers in order to enhance agricultural productivity.
- Through the support of international agencies, farmers are introduced into dry season farming, chili pepper and bee keeping production.
- The University also has collaboration with the Veterinary Department of the University of Glasgow aimed at improving the nutritional quality of animal feeds.
- Mechanism through which knowledge is transferred to the communities comprises of one to one consultations, local radio programmes, and meeting community members directly to demonstrate new technologies. However, the study found that these pathways are not effective especially when research activities are not commissioned research.

(C) Responding to social, cultural, and environmental development

- The University is responding in a variety of ways to the social, cultural, and environmental development of Northern through the institution of the TTFPP. Students stay in communities for the third trimester and engage in a variety of community services – community profiling, giving health talks, engaging in teaching in schools.
- The University engages in public debate that aims at contributing to the development of northern Ghana through the institution of the annual “Harmattan School”
- The academics at the School of Medicine and Health Sciences partner with medical team at the Tamale Teaching Hospital to improve the health needs of the local communities. Also, the university aims at improving the health needs of the people through the initiation of the Community- Based Education and Service (COBES) at the Medical School.
- UDS is promoting social, cultural, and environmental development through the research activities of the Centre for Continuing Education and Interdisciplinary Research.

(D) Constraining factors to regional development in northern Ghana

- Inadequate funding of regional engagement activities by the national government
- Lack of policy support to the regional development goal of the university
- Inadequate infrastructural development in northern Ghana
- Lack of ability and readiness of community members to absorb university knowledge
- Low capacity of the regional economy to retain graduates in the region leading a high migratory pull of graduates to other regions
- Regional authorities do not have a specific role or policy focus on the university’s regional role and engagement activities.
- Inadequate internal incentive structures to motivate engagement activities.

- Internal requirement for promotion perceived not as carrying much weight on engagement activities.
- Inadequate infrastructural development of the university and unwillingness of some academics to participate in engagement activities.

5.6 Conclusion

The chapter presented the empirical part of how UDS is responding and engaging in regional development in northern Ghana. It has revealed quite a number of initiatives and programmes that have been instituted or carried out by UDS in response to its regional mandate in northern Ghana. Notable among these are initiatives that aim at creating access to both traditional and non-traditional students in northern Ghana to have university education, adaptation of existing academic programmes and establishment of new ones in response to regional labour market needs, initiating innovative practices into agricultural productivity, and responding to the social and environmental development through the TTFPP, engaging in public debates through the harmattan school, and helping to improve the health needs of the people of northern Ghana.

The study showed that while some of the initiatives are from the institutional level, quite a number of them are the initiatives of individual academics through the support of international agencies. In spite of these initiatives, the university's regional role is saddled by a number of constraining factors both at the national, regional and the institutional level.

6 DISCUSSION, RECOMMENDATIONS AND CONCLUDING REMARKS

6.1 Introduction

The aim of this chapter is to discuss the findings from the empirical study of UDS's engagement in regional development in northern Ghana, with the purpose of shedding light on the four research questions and the overall research problem posed in the introduction. It also provides a conclusion to the study, give some guidance to further research and outline some policy recommendations. In doing so, the chapter begins by briefly revisiting the research problem and the research questions posed in the study. This is followed by the discussion in light of the related literature review (as presented in chapter two) and in light of the study context (presented in chapter four).

The purpose of this study was to investigate the following principal research question: How is UDS responding and engaging in regional development in Northern Ghana and what are the key factors constraining its efforts? The rationale behind the chosen focus stemmed from the fact that UDS was established in 1992 under the PNDC Law 279 with an explicit mandate to blend its academic work with that of the community in order to provide constructive interaction between the two for the total development of northern Ghana. Since its establishment with such a mandate, little is known about how it is responding and engaging in regional development. Besides, few empirical studies tend to focus specifically on how higher education institutions in Sub-Saharan Africa are engaging in regional development in the literature.

With these as the backdrop, the main objective of the study was to investigate how UDS is engaging in regional development with specific focus on how it is engaging in human capital development, regional innovation, social, cultural, and environmental development in northern Ghana, and the possible factors constraining the regional role of the university. With these as the empirical focus, the study adopted the analytical framework of the OECD (2007) study. As described in chapter two, the underlying assumption of the framework is that for higher education institutions to engage in regional development, they need to link together all

their core activities - teaching, research, and service - to the human capital, innovation, and social, cultural, and environmental development of the region.

6.2 Discussion of findings

6.2.1 Enhancing Human Capital Development in Northern Ghana

Our empirical data has shown that UDS has undertaken a number of initiatives, strategies, and programmes in order to enhance the skill needs of northern Ghana. Thus, an effort has been made by the university to link its teaching function to the development of human capital of the region.

Within the Ghanaian context some past studies have shown that students from the three northern regions of Ghana stand a less chance of gaining admission to higher education institutions in Ghana (Addae Mensah 2000; Manuh et al. 2007). Manuh et al. (2007:82) shown in their study that “the most significant factor enhancing the chances of access to universities in Ghana was the region of residence” and that nearly 70 percent of the students of the five public Universities in Ghana reside in only three regions, namely Greater Accra, Ashanti, and Eastern Regions. What it means is that there is a high inequality of access to higher education institutions in Ghana, especially in the universities, in terms of regional differences. This is also supported by the overview of the three administrative regions of northern Ghana as presented in Chapter four where the level of educational attainment falls below that of the national average.

As seen in the literature, the OECD (2007) observes that inequality in education implies that human potential is wasted, and under-educated individuals not only fail to contribute to development, but also generate social cost. Thus if UDS is creating opportunities for more students to be recruited from northern Ghana, by allocating 40 percent of its admission place, then it is in the right direction since it stands a greater potential of reducing poverty level in northern Ghana. For as seen in the literature review, human capital accumulation is an important determinant of individuals earning capacity and employment prospect and thus plays an important role in determining the level and distribution of income in society (Blondål et al. 2002). The reason being that as more students from these deprived area gain access to higher education, they will come out with the requisite skills, knowledge, and competencies

that will enable them to be productive and consequently help to reduce the level of poverty in northern Ghana. This initiative is consistent with the effort of several other universities as seen in the literature as they are making effort to recruit students from their located regions (Gunasekara 2004; Goddard et al. 2003) and also in line with one of the successful lessons drawn from the land-grant tradition as it sought to create access to under-privileged groups.

However, a mere recruitment of students from a region is not enough to stimulate regional development. It partly depends on the retention of students and their employability in the region after completion which is also influenced by how well the university aligns its academic programmes to the needs of the regional economy and how strong the regional economy is to absorb the graduates. According to the OECD (2007), the knowledge that is transmitted into students and graduates and is subsequently absorbed into the regional economy is one of the most effective means of knowledge transfer and has a greater potential of transforming regional economies. In that respect, the study has shown that UDS has adopted a curricular that integrates students into local communities for eight weeks in each academic year with the hope that they will gain favourable attitudes which will facilitate their retention in these communities. But, what is lacking is whether these students have corresponding industrial and business opportunities in these communities and whether their respective programmes are linked to these industrial or business pathways in the communities. It is only when there is a close match between these two streams that students' retention as well as employability in northern Ghana can be stimulated. If such a match does not exist, then their integration into the communities during studies which is aimed at facilitating their retention is likely not to yield any meaningful result as far as the retention is concerned. But how far is the university considering an aspect like that? The study has shown that this is not part of their community integration programme.

The study results also show that there is lack of systematic assessment of the labour market needs of the region by the university, lack of specific programmes responding to specific regional industrial needs and a minimal co-operation between UDS and regional employers. The absence of these stands a greater chance of leading to a weaker link between UDS and the labour market in northern Ghana. "For labour market mismatch can often be attributed to lack of labour intelligence and knowledge gaps between higher education institutions/graduates and regional employers; inadequate co-operation between higher education institutions and

employers; inadequate support for new enterprises; and the extent to which knowledge developed can be applied within the region” (OECD 2007:153).

Also a critical look at the new programmes that have been established in response to regional labour market needs and the overall subject mix of UDS shows dominance in the social sciences and the humanities which mostly require employment mostly in public institutions. Meanwhile, employment opportunities in these institutions are limited hence many students stand the chance of not getting employment and are likely to migrate to other regions. So it is not surprising that in spite of the strategies mapped out by UDS to enhance the retention and employability of students the migratory pull of students to other regions is perceived to be high as the study has shown. Thus, even though the initiatives that are in place at the University are laudable considering the nature of Northern Ghana as presented in chapter four, the retention of students can further be stimulated if students are equipped with more practical and vocational training and also a greater link of the university and locally based industries/businesses are strengthened. The reviewed literature pointed out quite a number of initiatives of this nature that have been experimented in some universities in the OECD countries.

In fulfilling its mandate, the study result shows that the university has created a specific unit to promote lifelong learning in northern Ghana. However, a look at the academic programmes reveals a limited target to local industrial workers and other Small and Medium Enterprises (SME's). But as it is pointed out the changing nature of labour market competencies requires retooling and re-skilling of workers to enable regions to be competitive (OECD 2007). This calls for higher education institutions to orient their Continuing Education programmes to, a greater extent, the industrial activities and other businesses in their located region so that the expertise of these professionals can keep pace with the knowledge requirement in the emerging knowledge economy. However, this is lacking as the existing programmes target more of public institutions than to specific industrial activities.

One possible explanation to the seemingly missing link between UDS and the industrial activities and local businesses could be the presence of three polytechnic institutions in northern Ghana. Boucher et al. (2003) asserts that the number of regional stakeholders and institutions that articulate regional needs are likely to shape the regional role of higher education institutions. According to them, in smaller and less central regions, universities often represent a unique repository of knowledge, largely because of the lack of other

institutions rendering similar services such as governmental research laboratories, social science research centres, and business with research and development departments. Even though northern Ghana is a deprived area, in addition to UDS there are other three polytechnic institutions which are also mandated by law to be regionally focused with more attachment to the industrial sector compared to the universities. Thus, though UDS has a regional development mandate and remains as the only public university in northern Ghana, there is a high possibility that the partnership with the industrial sector and other local businesses is perceived to be roles to be played by the polytechnic institutions.

In terms of the first research question – how is UDS responding to the development of human capital in northern Ghana? – the empirical analysis shows that UDS has initiated a number of programmes to respond to the development of human capital in northern Ghana. UDS allocates 40 percent of its admission place to applicants from its catchment area and also creating opportunities for more females to be enrolled through its admission process. It has also localized its teaching and learning process by adapting its curricula to integrate students into communities in the third trimester of each academic year and also through the adoption of Problem Based Learning approach. Steps have also been taken to introduce new academic degree programmes and adapt existing ones in response to regional labour market needs. In order to respond to the needs of non-traditional learners, the university has instituted lifelong learning programmes through the creation of the Centre for Continuing Education and Interdisciplinary Research. Finally, graduate retention and employability in northern Ghana is facilitated by the university through the creation of the guidance and counseling unit, the creation of the Alumni office and the integration of students in the communities during studies. However, there is lack of evidence of specific degree programmes meant to respond to the needs of specific local industries in northern Ghana and also little evidence of systematic assessment of the labour market needs of the region by the university.

6.2.2 Responding to building innovation capabilities of northern Ghana

As seen in the literature review, universities contribute to local innovation processes in a variety of ways. It was pointed out that the university's role in regional innovation processes depends on the kind of industrial transformation that is occurring in the local economy (Lester 2005). Thus as it was seen, the “one-size-fits-all” approach to economic development pursued

by so many universities, with a focus on patenting, licensing, and new business formation, needs to be replaced with a more comprehensive, more differentiated view of the university's role in regional innovation. It was advised by Lester that universities need a stronger awareness of the pathways along which local industries are developing and the innovation processes that are associated with those pathways. They should then align their own contribution with what is actually happening in the local economy.

The overview of the study context presented in chapter four showed that agriculture is the main economic activity in northern Ghana with about 80 percent of the economically active population engaging in agriculture, though there are other local industrial activities as well. It was also pointed out that the policy mandate of UDS specifically places greater emphasis on certain areas of study including agriculture as indicated in the profile of UDS.

In line with these, the findings show that UDS is introducing innovative practices into agriculture in northern Ghana than other local businesses. Analysing how it is responding to the innovation capabilities in agriculture in line with the typology of innovation pathways presented in the literature review chapter, UDS's responses goes in line, to a great extent, with the Type IV which involves the upgrading of the technological base of existing industries. As it was seen in the literature, among other things, under this pathway universities contribute to technical problem solving through contract research and faculty consulting, develop industry relevant degree and continuing education programmes, create student internship and participate in global best-practice scanning actively with local industrial practitioners.

UDS's role in innovation capabilities has been associated with this pathway in the sense that agriculture represents the main economic activity in the area, hence representing the "existing industries" of the place. Respondents indicated that they aim to introduce innovative practices in order to increase agricultural productivity in the north, thereby "upgrading the technological base of the existing industry". Respondents indicated that this is done through engaging in collaborative research activities with the Savannah Agriculture Research Institute and also the Veterinary Department of the University of Glasgow, engaging in contract research being supported mostly by international agencies through the initiative of individual academics, which among other things is introducing farmers into dry season farming, bee keeping production and improving Shea nuts production. However from the results little attempt has been made on the part of the university to engage in innovation activities in other local industrial activities and businesses. It appears that the university lacks the necessary

infrastructural support that will enable it play such roles. Thus, the university is not developing the innovative capacity of northern Ghana through most of the industrial pathways outlined by Lester (2005) seen in the literature. Thus, though the call for a more comprehensive and more differentiated views of the university's role in regional innovation by Lester is in the right direction, this study is also showing that not all regions and their universities may fall within his categorization of industrial pathways.

Also, the literature as seen in chapter two points out a number of channels or mechanisms through which research output is transferred from higher education institutions to the industrial sector and the wider community including singly entry points such as regional development offices, research centres, spin off companies, incubator units, advice and training services, sciences parks and mechanisms to exploit intellectual property rights (Chatterton and Goddard 2000). However, our empirical data show little evidence of the above mechanisms and infrastructures in the case of UDS and northern Ghana as a whole. Rather, the study results show that UDS disseminates knowledge and technology through one to one consultations with local farmers, meeting farmers directly from time to time in the communities to demonstrate new technologies and through radio programmes. Thus, the study seems to suggest that the industrial transformation occurring in the regional economy and shapes the manner through which knowledge is likely to be transferred.

Finally, it should be indicated that one potential means that the university is capable of introducing innovative practices in northern Ghana by UDS, as the data reveals is the existing outreach programme of the university. This approach is stressed by Chatterton and Goddard (2000) as they indicate that the most effective technology and knowledge transfer mechanism between higher education institutions and the external environment is through the institutional teaching function and mobility of university graduates and that as staff and students integrate themselves into their environment through outreach activities, placements and also through the design of the teaching curriculum, it stands a greater potential of building the innovative capabilities of regions. Since UDS students through the supervision of academics are integrated into the communities for eight weeks in each academic year, it is likely to make profound impact in the innovation capabilities of northern Ghana.

From the above discussion, it is clear that the notion of regional development role of higher education institutions needs to be addressed within the context within which the university is located as already pointed out in the literature.

In terms of research question two – how is UDS responding to the building of innovation capabilities of northern Ghana? – the empirical data indicates that UDS is introducing innovative practices in agriculture through engaging in collaborative research activities with the Savannah Agriculture Research Institute and also the Veterinary Department of the University of Glasgow, engaging in contract research being supported mostly by international agencies through the initiative of individual academics, which among other things is introducing farmers into dry season, bee keeping production and improving Shea nuts production. Also, it was found that the university disseminates knowledge through one to one consultations with local farmers, meeting farmers directly from time to time in the communities to demonstrate new technologies and also through outreach activities by the students. However, the study shows that UDS has not made enough progress in linking its research activities to other local industrial activities and also stimulating other local businesses.

6.2.3 Engaging in social, cultural, and environmental development

The overview presented on northern Ghana in chapter four shows that northern Ghana is a deprived area and remains as the poorest part of Ghana. Among other things, the overview indicated that there is high illiteracy and low educational attainment, poor health conditions, and high incidence of conflicts in the area. Also, in the review of the literature it was pointed out that a number of trends are converging that is increasing the service function of higher education institutions and among these are the growing awareness of the global nature of many problems such as environmental degradation, poverty and economic development which has created a number of interconnected local responses and that higher education institutions are well placed to interpret these global issues on a local scale (Chatterton and Goddard 2000).

As a result of these and the fact that UDS aims at helping to solve the environmental and social problems of northern Ghana, the study results show that it is responding in a variety of ways to the social, cultural and environmental development of Northern Ghana. This is done through the institution of the TTFPP which integrates students and academics in the communities in the third trimester of each academic year. Students, through this programme engage in teaching in the basic schools, engaging in community health talks, and doing community profiling in order to keep coherent data on the communities which serves as the

basis for developmental projects etc. Besides, the University engages in public debate that aims at contributing to the development of northern Ghana through the institution of the annual “Harmattan School” which among other things brings together stakeholders to discuss development issues confronting northern Ghana and also the academics at the School of Medicine and Health Sciences partner with medical team at the Tamale Teaching Hospital to improve the health needs of the local communities. Also, the university aims at improving the health needs of the people through the institution of the Community- Based Education and Service (COBES) at the Medical School.

First of all, the study results show that the university has positioned itself well in this domain of regional development than introducing innovative practices in industries and other local businesses in the region. This could be explained partly by the fact that students are the agents being used mostly in these activities. Thus considering the fact that the university is making little effort to liaise with local businesses and the industrial sector and also the fact that most of the “success stories” in innovation in agriculture are the initiatives of individual academics through the support of international organizations, it appears that the regional role of universities is conceived differently in the case of UDS and probably in other universities in deprived areas. Some respondents even indicated that UDS is not a technological institute but they are to study developmental challenges in the area and find solutions to them. But the literature as presented in chapter two generally portrays an opposite picture in the advanced economies. According to Lester (2005), at present the major focus of the regional role of higher education institutions is on technology transfer and that “many universities are seeking to exploit their laboratory discoveries by patenting and licensing intellectual property to local firms”(p.3). This assertion is also supported by the OECD (2007) as seen in the literature review chapter. This is an indication the regional role of higher education institutions is conceived and carried out differently in the developing and the developed countries.

Another point which needs to be spelt out is that from the data analysis the driving force behind the outreach activities is the fact that students earn six credits for engaging in such activities. The respondents indicated that since students want to earn good grades, they end up putting up their best in the engagement activities. Thus, the study seem to suggest that even though attitudes of higher education institutions towards regional engagement are sensitive to the way they are funded (OECD 2007), there are equally other avenues through which engagement activities can be stimulated as exhibited in the case of UDS. However, is it not

also possible for students in such circumstances to write good reports in order to earn good marks? Thus, the extent to which this TTFPP is impacting on the social and environmental development of the people (which in any way is not the focus of this study) can be questioned and needs to be a concern to regional authorities as well as university leaders having in mind that northern Ghana is confronted with a lot of social issues and challenges. For instance, some of the respondents seem not to be much concerned about the social role or the immediate benefit but that they are more concerned with the long term goal of inculcating favourable attitudes in students through the programme to enable them live in the area after their studies. But since a whole trimester is devoted to the programme then authorities should be much concerned about the immediate benefit as well.

In terms of the third research question – how is UDS responding to the social and environmental development in northern Ghana? – the empirical and documentary analysis indicate that UDS is responding through the institutions of the Third Trimester Field Practical Programme, engaging in debate through the institution of the annual harmattan school, improving the health needs of the people through partnership with medical team at the Tamale Teaching Hospital, the institution of the Community- Based Education and Service (COBES) at the Medical School and promoting social and environmental development through the creation of the Centre for Continuing Education and Interdisciplinary Research.

6.2.4 Constraining factors to regional development role

The empirical data indicates a number of factors perceived by respondents to be hindering the regional role of UDS. These constraining factors were perceived to be from the national, regional and the institutional level. This supports the literature review as it indicates that the regional role of higher education institutions could be constrained or shaped by the characteristics of the institution, the region in which they are located, and the national policy frameworks (Boucher et al. 2003; Arbo and Benneworth 2007).

Though the orientation of UDS to regional development stemmed from the fact that it has a policy mandate to engage in the development of northern Ghana, respondents revealed that UDS does not receive financial and policy support both by the national government and the regional authorities. It was seen from the data analysis that the funding model in place is based on student numbers making little room for engagement activities. This state of affairs confirms the findings of other studies as seen in the literature. For instance, Gunasekara

(2006) indicates that within the Australian context, although national governments were encouraging universities to support the development of their regions, there is however little incentive to this and that national scheme of funding are predicated on excellence and specific national priorities. The situation is not different in South Africa as internal reward structures follow traditional public funding modules based on student numbers and research outputs (Pinheiro 2010).

But from a policy perspective, since UDS was established with such a policy mandate to engage in regional development activities and considering the fact that it is established in an economically challenged area as seen in chapter four, one would have expected that it would have received the appropriate national as well as regional funding and policy support. Unfortunately, that has not been the case since the university does not receive funding support from the national and the regional government for engagement activities and also lacking the necessary infrastructural support. This contrasts the lessons drawn from the land grant tradition presented in chapter two, as it received continues governmental support to enable the institutions accomplish the very purpose for which they were established. For example, the first Morrill Act provided grants in the form of federal lands to each state for the establishment of a public institution to fulfill the act's provision. Also in 1887 Congress recognizing the need for research as a basis for developing agriculture, passed the Hatch Act, authorizing direct payment of federal grant funds to each state for the establishment of an agricultural experiment station in connection with each Land-Grant institution (NASULGC 2008). Finally, in order to disseminate the research output from the research stations, the Smith-Lever Act of 1914 created a Cooperative Extension Service associated with each Land-Grant institution, and that authorized ongoing federal support for extension services. Yet though UDS is also expected to engage in research and disseminate its knowledge to the people of northern Ghana, no appropriate structures and policy support have been initiated to stimulate these activities by the national government. This development may be due to the fact though there exist a policy mandate for UDS, the university is not probably seen as a key player and instrument in regional development or the notion of universities in regional development is conceived differently by national and regional governments.

Also, the analysis of the data indicates that there are a number of factors that are perceived to be hindering the regional role of UDS at the regional level. The data analysis shows that there is lack of ability and capacity of the regional economy to absorb university knowledge and

graduates. As far as the retention and employability of graduates in a region is concerned, two major issues were raised in the literature review presented in chapter two. On the one hand, it was seen that the ability of the regional economy to absorb graduates depends to a greater extent on the degree of alignment between the university and the regional economy in terms of the programme offered by the university. On the other hand it was pointed out by Feldman (1994) that the ability of a region to retain the graduates from the university rests on the demand for their services, especially the employment and advancement opportunities in the area which is a function of the types and occupational structure of industries located in the area. These two issues are interrelated in the sense that a vibrant regional economy is likely to stimulate a stronger alignment of the activities of the higher education institution to the regional economy. On the contrary, if the absorptive capacity of the regional economy is low, all things being equal, there is likely to be a gap between the activities of the university and the regional economy since there is little to be attached to. As seen in the case of northern Ghana, the overview in chapter four shows that the main economic activity in the regional economy is agriculture with few “traditional” local industries. Thus, the industrial as well as the overall absorptive capacity of the region is low. In that respect a stronger alignment of the activities of the university is likely to be difficult. So it is not surprising that most of the academic degree programmes of the university are oriented more towards the public sector which has led to a high pull of graduates to other regions as was seen in the analysis in chapter five. This development supports the observation by Feldman (1994) that although the proximity to a major university research appears to be a necessary condition for local-technological economic development, it alone is not a sufficient condition and provides no guarantee that economic development will follow. For, universities are seen as only one element of the technological infrastructure of innovation and that if other factors are lacking, innovation is less likely to be complete and the area will not capture the benefits of proximity to the research university.

Also, inadequate infrastructural development in northern Ghana was also perceived as a problem. On the one hand, it was seen that this makes it difficult for UDS to attract the needed human resource it requires to render the regional role. On the other hand, it was pointed out that many communities are not benefiting from the engagement activities due the lack of some social amenities in those communities. In the overview to northern Ghana presented in chapter four, it was pointed out that access to clinics and hospitals in northern Ghana is confined to few communities in all districts and that in most instances, residents of

the communities have to travel considerable distances to have access to these facilities. Thus, respondents indicated that for the sake of the health needs of students, they are made to undertake the outreach programme in communities with health facilities, implying that those communities without health facilities are not benefiting from the outreach programme. This challenge also point to the fact that the regional role of the university has not attracted the necessary policy support. The study found that regional authorities have no specific role and policy focus thus the needed structures that are to be put in place to facilitate the accomplishment of the regional role of UDS are not in place.

At the institutional level, lack of internal incentive structures to motivate academics to engagement activities, the requirement for promotion for academics not perceived to be carrying much weight on engagement activities, and lack of commitment on the part of some academics to participate in activities of regional nature were perceived to be hindering the regional role. As seen in the literature chapter, if regional engagement is to become embedded in institutional cultures, it is important that the reward systems recognize the importance of this direction (Gunasekara 2006; OECD 2007; Pinheiro 2010). However, it appears most studies have identified these factors to be constraining the regional role of universities in the literature in several settings. For example it was seen in the literature that in a peri-urban university in Australia, the key criteria for promotion for academics centred on teaching and the production of refereed research publications , with community service seen as a desirable requirement but not critical in decision making (Gunasekara 2004b). In this study, even though the criteria for promotion by academics recognizes “community service” the description given to it does not focus specifically on regional activities in northern Ghana which is seen as the main objective of UDS as seen in the introductory chapter. Thus the findings reveal a gap between UDS’s intentions on regional development and what it actually does to incentivize it and this could stem from the fact that the institution does not receive support from the national government and regional authorities. It appears then that the unwillingness of some academics to participate in activities of regional nature could also be explained by the lack of existing incentive schemes and the internal promotion criteria for academics. This is because, as the findings has shown, almost all the activities undertaken by academics to introduce innovative practices into agriculture are individual initiatives being supported by international organizations, which means that if academics have similar packages instituted internally, they are likely to be stimulated to engage in regional activities.

In terms of the fourth research question - What are the possible factors that constrain the university in responding to its regional development mandate? – the empirical data indicates that the regional role of UDS is perceived to be constrained by a variety of factors. It was indicated that there is inadequate funding of regional engagement activities as well as lack of policy support by the national government and regional authorities, inadequate infrastructural development in northern Ghana, lack of ability and readiness of the regional economy to absorb university knowledge and graduates. The study also showed that there is lack of specific internal incentive structures to motivate academics to engage in activities of regional nature, the requirement for promotion for academics was perceived not to be carrying much weight on engagement activities and unwillingness of some academics to engage in activities of regional nature. Finally, inadequate infrastructural development of the university was also seen as a challenge.

6.2.5 A reflection of findings on the notion of universities in regional development/ analytical framework

This section seeks to make some general reflections on the analytical framework employed in the study and the idea of the role of higher education institutions in regional development in light of the findings generated in this study. Since the OECD analytical framework was developed for the most developed, rich countries in the world, is it really useful to be used in the context of northern Ghana?

First of all, the analytical framework employed in the study highlighted that for higher education institutions to play a regional role, their teaching, research, and service functions which need to be integrated must be linked to the human capital development, innovation capabilities, and social, cultural, and environmental development of their regions. In the first place, the framework remains useful due to its broader conceptualization of the dimension of regional development and the engagement activities of higher education institutions. This study has shown that UDS has generally linked its teaching, research, and service roles to the regional needs of northern Ghana. However, considering our empirical data, it is revealing that higher education institutions engaging in regional development are likely not to link their activities to the three dimensions of regional development proportionally. If so, under what circumstances will this occur? Again, under what prevailing conditions will the institution orient its activities to some aspects of regional development than others?

These issues are being posed in the sense that, the data analysis indicates that considering the three dimensions of regional development conceptualized in the study, UDS has rather a stronger link to the human capital development and social, cultural, and environmental development than the regional innovation capabilities. This situation seems to be explained through the data by the internal institutional dynamics (subject mix of the university with its dominance in the social sciences, institutional interpretation and meaning given to the idea of the role of universities in regional development etc.), regional characteristics (the industrial base, lack of financial support and policy focus), as well as national policy frameworks. Meanwhile, the literature seems to suggest that there is a strong link in the innovation capabilities in the advanced economies. For instance, Lester (2005) claims that at present the major focus on the notion of universities in regional development is on technology transfer and that many universities are seeking to exploit their laboratory discoveries by patenting and licensing intellectual property to local firms. Also, the OECD (2007) as seen in literature review chapter observes that while most countries have aimed to support their regional innovation systems by supporting high technology research, technology transfers, and business related competitiveness, human capital development, localizing the learning process and upgrading the regional base skills have often attracted less attention. On the one hand, the findings of this study confirms earlier study findings that the regional role of higher education institutions is defined by their industrial contexts (Lester, 2005; Isaksen and Kalsen 2010)), policy contexts at national and regional levels (OECD, 2007; Puukka and Marmolejo 2008), as well as the institutional characteristics and orientations (OECD 2007; Hatakenaka 2008). But on the other hand, the findings of this study seems to suggest that certain conditions are likely to influence higher education institutions to be more active in engaging their activities to some dimensions of regional development rather than others which the analytical framework seems not to reveal. In that respect, the OECD (2007) analytical framework employed in this study needs further elaboration to capture the conditions under which higher education institutions can link their teaching, research, and services roles to all the three dimensions of regional development. That will make it more applicable to several cases.

Finally, one needs to take into consideration the understanding that is given to the regional role of higher education institutions in economically disadvantaged regions as shown in the case of UDS in northern Ghana. This is a region which has almost 80 percent of its population being peasant farmers, few “traditional” local industrial activities, and high illiteracy rate etc. In such a context, the idea of regional innovation conceived to embrace technology transfers

and exploitations of laboratory discoveries by patenting and intellectual property right conceptualized by the OECD has not featured prominently in the case of this study. Rather academics in the case of UDS are more into enhancing the human capital capabilities of the people and engaging in other forms of community services as the study findings has shown. Thus, the understanding to regional development in such a case is more into human capital development and community services than regional innovation due to the reasons that have already been pointed out.

6.3 Ideas for future studies

The study has revealed some key issues surrounding the regional role of UDS in northern Ghana. Thus, it should serve as a starting point for other future studies to be carried out. Future studies can investigate into some of the following:

- Considering the findings generated in the study, there is the need for similar research in other universities in developing countries to investigate how they are engaging in regional development.
- More research is also called for on how the regional role of higher education institutions is conceived in developing countries.
- Since this study is not an impact study, future studies can investigate into the actual impact of the engagement activities of UDS and also other universities in developing countries.
- Future studies can explore into the experiences of students in engagement activities of UDS.
- Though other public universities in Ghana do not have regional development mandates unlike UDS, an investigation can be made into how they are also repositioning their core activities of teaching, research, and service to regional development needs.

6.4 Recommendations

Based on the study findings and discussions, the following recommendations are made:

- The regional role of higher education institutions is shaped by the funding strategy, regional and national policy support. Hence if UDS is seen as a key player in regional development through its policy mandate, then, government needs to set aside a special fund and put in place appropriate policy support structures to stimulate its regional engagement activities and also the engagement activities need to be monitored periodically.
- Regional authorities need to have a stronger policy focus on the regional activities of UDS. It has been found that if regional authorities have specific role in that direction, it may facilitates an attachment of the university to the region.
- The TTFPP should also embrace an aspect where students will be exposed to the industrial opportunities in the communities. This will go a long way to facilitate the retention and employability of students after studies.
- Considering the fact that there is high migratory pull of students to other regions, UDS needs to establish more programmes that are practically and vocationally oriented.

6.5 Concluding remark

University for Development Studies was established by the Government of Ghana in 1992 under the PNDC Law 279 in northern Ghana with an explicit mandate to blend its academic work with that of the community in order to provide constructive interaction between the two for the total development of northern Ghana in particular, and the country as a whole. Northern Ghana remains as the most deprived part of the country. Since its establishment, little is known about how the university is responding and engaging in regional development in such an economically disadvantaged region. In light of this, this study sought to investigate into how the university is responding and engaging in regional development in northern Ghana with specific focus on how it is responding to human capital development, innovation capabilities, and social and environmental development in northern Ghana. The study also sought to illuminate the key factors constraining the regional role of the university.

The key finding of the study is that though UDS has undertaken a number of initiatives and programmes aimed at responding to its regional development mandate - including allocating 40 percent of its admission place to students from northern Ghana; localising the teaching and learning process by integrating students into communities; introducing innovative practices to enhance agriculture productivity through collaborative research; promoting social, cultural and environmental development through the institution of the TTFPP; engaging in public debate through the institution of the annual “Harmattan School” - it has linked its teaching and service roles to the human capital development and social and environmental development of northern Ghana than its research activities to the innovation capabilities of northern Ghana. This is explained through the analysis by the internal institutional dynamics (subject mix of the university with its dominance in the social sciences, institutional interpretation and meaning given to the idea of the role of universities in regional development etc.), the regional characteristics (the industrial base of the region, inadequate infrastructural development in northern Ghana, low absorptive capacity), as well as national policy frameworks (inadequate financial support and policy focus of the regional role).

However, this situation contrasts how the regional role of higher education institutions is undertaken in the advanced economies as the literature seems to suggest a strong link of research activities to the innovation capabilities of the regional industries, and other regional businesses in addition to their teaching and service roles. Due to this, further research on how higher education institutions are responding and engaging in regional development in other deprived regions in developing countries is recommended.

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APPENDICES

APPENDIX A: An introductory letter from University of Oslo



UNIVERSITETET I OSLO
DET UTDANNINGSVITENSKAPELIGE FAKULTET

To whom it may concern

Department of Education
P.O. Box 1092 Blindern
N-0317 Oslo

Date: 03.01.2011
Your ref.:
Our ref.: kristi.barcus@ped.uio.no

Visiting address:
Sem Sælandsvei 7, Helga Eng's Building, 5th floor
Telephone: +47 22 84 44 75
Fax: +47 22 85 42 50
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ASSISTANCE IN THE CONDUCTION OF FIELD-WORK

This is to confirm that the student, Usman Kojo Abonyi, born 21.07.1980, is a second year student in the Master programme in Higher Education at the Department of Educational Research at the University of Oslo, Norway.

In the second year our students are required to write a Master thesis of 50 to 80 pages. The field-work may incorporate interviews with educational practitioners and decision-makers, class-room observation and documentary analysis. The type of data gathered should of course be discussed with the relevant authorities. It is our hope that the work produced by the student will not only benefit him in his academic career but also be of use to the future of Ghana.

Usman Kojo Abonyi will be conducting his research in Ghana at the University of Development Studies during the months of January and February 2011. We kindly ask you to give him all possible assistance during his field-work.

Yours sincerely,

Kristi Barcus
HEEM/HE Administrative Coordinator
Senior Executive Officer
Department of Education
University of Oslo
tel.: +47 22 85 53 56



UNIVERSITY OF OSLO
Department of Education
Box 1092 Blindern
N-0317 Oslo

APPENDIX B: Authorization letter from the University for Development Studies

UNIVERSITY FOR DEVELOPMENT STUDIES

(Office of the Registrar)

INTERNAL MEMORANDUM

From: Ag. Registrar
To: See Distribution
Date: 13rd January, 2011
Subject: **DATA COLLECTION**

Mr. Usman Kojo Abonyi (the bearer of this memo) is a second year Masters Student at the University of Oslo, Norway, who has chosen to write his thesis on "the role of Universities in regional development: a case study of UDS."

His Field-work may incorporate interviews with educational practitioners, decision-makers, classroom observation, UDS Central Administration and documentary analysis.

I should be very grateful if you could accord him the necessary assistance to collect data on such an important topic.

Thank you for your cooperation



Edmond Bukaari
(Senior Administrative Assistant)

For: Ag. Registrar
CC: Vice - Chancellor
Pro - Vice - Chancellor

Distribution

Dean, SMHS
Dean, FOA
Director, CCEIR
Coordinator, TTFPP
President of UDS Alumni

APPENDIX C: Interview guide

1. What is UDS's policy concerning student recruitment? How is UDS promoting the recruitment of students from the three northern regions?
2. What sorts of initiatives have been taken to create links with regional firms and industries?
3. How is labour market information gathered to monitor the flow of graduates into the labour market? Does this process involve other regional stakeholders?
4. How do you assess the capacity of the labour market to absorb the graduates in northern Ghana?
5. Are there specific initiatives or practices to support graduate enterprise in an effort to retain graduates in northern Ghana? How?
6. In what way does UDS draw upon the specific characteristics of northern Ghana to aid teaching and learning?
7. In what ways do educational programmes at UDS link to the regional needs of Northern Ghana?
8. Are there specific programmes/courses introduced in the faculty/department in response to the needs of northern Ghana?
9. What initiatives have been made to involve students into community development activities?
10. What mechanisms exist to monitor/accredit these activities?
11. Has UDS established a specialized unit to promote professional education provision? If so, how is continuing education and lifelong learning programmes organized at UDS?
12. What mechanisms are in place to increase the access of non – traditional learners in Northern Ghana through these activities?
13. How has the needs of northern Ghana informed the research activities in UDS?

14. What provision is made to meet the specific technology and innovation needs and demands, such as those of farmers in northern Ghana?
15. How does the university disseminate its research outputs to the local farmers, other local businesses and the wider community?
16. What mechanisms exist to reward regionally – based research activities at UDS?
17. Does UDS provides community access facilities and expertise support for services such as health and medical, welfare advisory, etc.?
18. What other initiatives and activities does UDS engage in aimed at promoting the social and environmental development in northern Ghana?
19. What specific units have been created to oversee community engagement activities in the university? Are there specialized staffs to take care of such activities?
20. How is government supporting UDS to carry out its regional development mandate?
21. Does the existing funding model of government recognize engagement activities?
22. What specific role do regional authorities play in the regional engagement activities of UDS?
23. What specific units, structures or appointments are made by the universities that are linked to its development mandate?
24. What sort of rewarding/incentives packages are in place to encourage staffs and students to engage in community engagement programmes?
25. Are academics generally willing to involve themselves in activities of regional nature? Why or why not?
26. What other factors do you perceive are hindering the regional role of UDS at both the regional and institutional level?